EZPanel Enhanced
EZText Enhanced
EZTouchPLC
EZTextPLC
EZMarquee
EZPLC & EZI/O
EZ Touchscreen CE Computer
EZCE Touchpanel
EZMonitor

336 pages of the most SENSIBLE Automation Products

Designed and built in USA by

AVG

EZText Enhanced User Manual

Models: EZ-220, EZ-220V, EZ-220L, EZ-420, EZ-220P, & EZ-220PV

Manual Part Number EZ-TEXT-M-E

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WARNING!

Programmable control devices such as EZText Enhanced Panels are not fail-safe devices and as such must not be used for stand-alone protection in any application. Unless proper safeguards are used, unwanted start-ups could result in equipment damage or personal injury. The operator must be made aware of this hazard and appropriate precautions must be taken.

In addition, consideration must be given to the use of an emergency stop function that is independent of the programmable controller.

The diagrams and examples in this user manual are included for illustrative purposes only. The manufacturer cannot assume responsibility or liability for actual use based on the diagrams and examples.

CAUTION

Do not press the EZText Enhanced Panel pushbuttons with any sharp objects. This practice may damage the unit beyond repair.

Trademarks

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Manual P/N EZ-TEXT-M-E

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MANUFACTURED by AVG AUTOMATION
4140 Utica Ridge Rd. • Bettendorf, IA 52722-1327

MARKETED by EZAutomation
4140 Utica Ridge Rd. • Bettendorf, IA 52722-1327

Phone: **1-877-774-EASY** • Fax: **1-877-775-EASY** • ***www.EZAutomation.net***

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EU Information

The EZText Enhanced Panel is manufactured in compliance with European Union (EU) Directives and carries the CE mark. The EZText Enhanced Panel has been tested under CE Test Standard #EN55011, and is listed under UL File #E209355. The following information is provided to comply with EU documentation requirements.

Please NOTE: Products with CE marks perform their required functions safely and adhere to relevant standards as specified by EU Directives provided they are used according to their intended purpose and that the instructions in this manual are adhered to. The protection provided by the equipment may be impaired if this equipment is not used in accordance with this manual. Only replacement parts supplied by EZAutomation or its agents should be used.

Technical Support

If you need assistance, please call our technical support at 1-877-774-EASY or FAX us at 1-877-775-EASY.

SELV Circuits

All electrical circuits connected to the communications port receptacle are rated as Safety Extra Low Voltage (SELV).

Environmental Specifications

Operating Temperature.....0 to 45 °C

Storage Temperature..... –20 to +60 °C

Operating Humidity.....10–95% R.H., noncondensing

Air Composition .....No corrosive gases permitted

Preventative Maintenance and Cleaning

No preventative maintenance is required. The EZText Enhanced Panel overlay should be cleaned as needed with warm, soapy water. See Chapter 6, Maintenance and Troubleshooting, for a list of compatible/incompatible chemicals and compounds.

1

Introduction

In this chapter....

- Manual Organization
- Introduction to the EZText Enhanced Panel
- What you need to get started
- Need HELP?
- Models
- PLCs Supported by EZText Enhanced
- Accessories and Optional Equipment
- PLC and Programming Cable Part Numbers
- Front Panel Features
- Specifications

Manual Organization

This manual is all you'll need to get the EZText Enhanced Panel installed and configured. This manual covers models EZ-220, EZ-420, EZ-220L, EZ-220P, and two new models with Vacuum Fluorescent Display EZ-220V, EZ-220PV.

In this manual we will take you through the steps necessary to get your EZText Enhanced Panel up and running in the shortest possible time. Although your familiarity with programmable operator interface devices will determine how quickly you move through the steps — it's as easy as 1 — 2 — 3. This manual is arranged in chapters. A description of key information contained in each chapter is provided below.

Chapter	Description
1	**Introduction** Provides Manual Organization, and lists what you need to get started, hardware and software. Discusses how to get help with questions or problems you might encounter through Onscreen Help and Technical Support. Provides you with a table listing the various models, their part numbers and special features. Lists the important features of all EZText Enhanced Panels. Lists the PLCs supported by the panels, by brand, model and protocol. Lists the part numbers for PLC cables and the programming cable. Tells how to install programming software.
2	**Hardware Installation** Provides instructions on how to install custom labels and the EMI Noise Filter. Discusses two mounting techniques — stud mounting and DIN clip mounting. Provides Outline Dimensions and Mounting Template. Provides you with instructions on connecting the unit to power, a programming PC and a PLC.
3	**Learning the Features** Provides an Overview of the panel features. Front Panel Features, including; Function Pushbuttons/LEDs, Character LCD Display, PLC Message LED and Control Pushbuttons are discussed. Local and PLC Messages are described, along with types of Messages and Embedded Data Variables (DATA 1, 2, and 3).
4	**Tutorial** Provides instructions to create an example (or "demo") project. Discusses how to configure a PLC ladder logic program to use with the demo project. Takes you through the steps necessary to create an EZText Enhanced Panel project using the programming software and application worksheets. Shows you how to transfer a project to the panel.
	Configuration

Chapter	Description
5	Step-by-step instructions for configuring the EZText Enhanced Panel (new system) using the EZText Enhanced Programming Software are provided.
6	**Maintenance and Troubleshooting** Instructions for maintaining the EZText Enhanced panels are provided, including; Fuse Reset, Precautions, Chemical Compatibility, Cleaning, and Gasket Replacement. Troubleshooting section aids in diagnosing problems you might encounter when installing or operating the panel. Provides steps to take to isolate and correct problems.
A	**Appendix A** Application Worksheets are provided to help you plan and implement your system configuration.
B	**Appendix B** Wiring diagrams for several PLC cables are provided.
C	**Appendix C** Error Messages for PLC Drivers, EZText Enhanced Panel, and EZText Enhanced Programming Software.

Introduction to the EZText Enhanced Panel

The EZText Enhanced Panels provide a man-machine interface to your PLC automation system. The panels provide features such as 5 user-defined pushbuttons with LED indicators, arrow adjust buttons, and a built-in menu system. The panels communicate with a PLC using either RS-232C or RS-422A/485A serial communication. Configuration software and panel programming are covered in chapter 5 of this manual.

The panels allow you to configure up to 256 20-character text strings configured as PLC Messages and Local Messages. Local Messages are internal panel messages that the operator can scroll in a menu tree hierarchy. PLC Messages are displayed when prompted from the PLC program. A PLC Message LED illuminates whenever a PLC Message is being displayed. Either message type can have up to three embedded data variables, one of which can be edited by using the arrow adjust buttons.

The panels have sealed membrane function pushbuttons that allow you to trigger PLC actions with the push of a button. These pushbuttons are used for input signals to the PLC. Each pushbutton can be configured to function as one of three switch types:

- **ALTERNATE**—keeps its current state until the button is pushed again
- **MOMENTARY**— is activated only while the button is being pushed
- **PANEL SET AND PLC RELEASE** —sets a bit in the PLC when pressed and is reset by either the PLC program or by pressing the button again.

The LCD display window supports two or four message lines that can display up to 20 characters each. The messages are programmed using the EZText Enhanced Programming Software. The message control type may be either **static**—text displays that have NO embedded data, **dynamic** —text messages that include embedded data (READ access only), or **interactive** —text messages that allow the operator to enter data, or change values that are stored in the PLC registers (READ/WRITE access).

The EZText Enhanced Panel is available in a variety of models to suit your application. Key features are provided on page 10.

What you need to get started

Hardware

- EZText Enhanced Panel (Models EZ-220, EZ-220V, EZ-220L, EZ-420, EZ-220P, & EZ-220PV)
- 24 Volt DC Power Supply (FA-24PS recommended)
- RS-232C Programming Cable (P/N EZTEXT-PGMCBL)
- Appropriate PLC Cables (see page 9 for part numbers)
- Programmable Logic Controller (PLC)
- PC requirements:
  - — IBM or compatible PC (486 or better) with a mouse and separate serial port
  - — VGA display with at least 800 x 600 resolution (1024 x 768 recommended)
  - — Standard Windows 95/98 (Second Edition)/NT4.0/2000® requirements
  - — CD ROM Drive

Software

- EZText Enhanced Programming Software (P/N EZ-TEXTEDIT-E)

Need HELP?

PLEASE NOTE: Chapter 6, Maintenance and Troubleshooting, should be able to help you with most problems you might encounter.

Onscreen HELP

One of the most important features of the EZText Enhanced Programming Software is the availability of context sensitive onscreen help. To access the Help windows, simply press the F1 function key while on the topic where you need help. For example, if you need help while working with panel configuration, hit the F1 function key when that dialog box is open and a pop-up HELP window will be displayed.

PLC HELP

If you need help with the PLC to EZText Enhanced Panel Interface, consult the EZText Enhanced Programming Software Help. Each PLC Driver has a Help Topic that lists the error messages and provides an explanation for each. Also provided are PLC to EZText Enhanced Panel wiring diagrams.

Technical Support

Although most questions can be answered with EZText Enhanced HELP or the manuals, if you are still having difficulty with a particular aspect of installation or system design, technical support is available at **1-877-774-EASY,** Monday through Friday, 6a.m. to Midnight CST, or FAX us at **1-877-775-EASY**. **Visit our website at *www.EZAutomation.net.***

Models

The EZText Enhanced Panels provide a low-cost, easy-to-use operator interface alternative for your PLC system. With easy to configure Windows-based software and simple installation, you can be connected and running in minutes. If your application requires pushbuttons, LEDs, or text display, but your budget is low, check out the complete line of EZText Enhanced Panels. The following features are common to the EZText Enhanced Panel models shown below:

- stores up to 256 20-character messages
- 5 user-defined function pushbuttons and LEDs
- 4 control pushbuttons
- up to three embedded PLC data variables per message
- built-in menu system
- EMI filtered power supply to reduce communication problems

Part Number

EZ-220P

2 line by 20 character LCD display
Five user-defined buttons and LEDs
Numeric keypad
Scroll data entry
Three tri-color LED annunciators
Built-in menu system
EMI filtered power supply reduces communication problems
Character Height 5.55mm (0.22")
External Dimensions are 10.018" x 5"

EZ-220PV

Above with Vacuum Flourescent Display

Part Number

EZ-220V
2 lines by 20 characters Vacuum Flourescent Display
Character height of 0.22" (5.55 mm)
External dimensions are 5" x 7.4" x 1.6"

EZ-220
Above with Vacuum with LCD Display

EZ-220L
2 lines by 20 characters LCD display
Character height 0.316" (8.06 mm)
External dimensions are 5" x 10" x 1.6"

EZ-420
4 lines by 20 characters display
Character height of 0.187" (4.75 mm)
External dimensions are 5" x 7.4" x 1.6"

PLCs Supported by EZText Enhanced Panels

PLC Brand	Model		Protocols Supported
Allen Bradley	MicroLogix 1000/1200/1500, SLC500, 5/03, /04, and PLC5		DF1 Hlaf Duplex; DF1 Full Duplex
	PLC 5		DF1
Aromat	Aromat		Mewtocol COM
Control Techniques	Unidrive 4-wire		Binary
Control Technology Corporation (CTC)	CTC 2600, 2700, and 5100		CTC Binary
EZAutomation	EZPLC		EZ Protocol
General Electric	90/30 and 90/70 Versamax		SNPX
Idec	Idec		Computer Link
Mitsubishi	FX Series (all)		Direct
Modicon	984 CPU, Quantum 113 CPU, AEG Modicon Micro Series 110, CPU: 311-xx 411-xx, 512-aa, 612-xx		Modbus RTU
Omron	C200, C500, CQM1, CPM1		Host Link
Direct Logic	DL05, DL06		K-Sequence; DirectNet; Modbus (Koyo addressing)
	DL105		K-Sequence
	DL205	D2-230	K-Sequence
		D2-240	K-Sequence; DirectNet
		D2-250/D2-250 - 1/260	K-Sequence; DirectNet; ModBus (Koyo addressing)
		D2-240/250/260 w/DCM	DirectNet
	DL305	D3-330/330P	DirectNet
		D3-340	DirectNet
		D3-350	K-Sequence; DirectNet; ModBus (Koyo addressing)
		D3-350 w/DCM	DirectNet
	DL405	D4-430	K-Sequence; DirectNet
		D4-440	K-Sequence; DirectNet
		D4-450	K-Sequence; DirectNet ModBus (Koyo addressing)
		All with DCM	DirectNet
		Entivity (Think-n-Do)	ModBus RTU
Siemens	Siemens S7300/400 PLCs MPI Adaptor		3964R
Texas Instruments	TI5x5 Series, TI505, TI545-1102, TI545-1104		TBP (Transparent Byte Protocol) or NITP (Non-Intelligent Terminal Protocol)

PLC Cables and Programming Cable Part Numbers

Part Number	Cable Description
EZP-2CBL	Direct Logic PLC RJ12 port, DL05, DL105, DL205, DL350 & DL450 (RS-232C)
EZP-2CBL-1	Direct Logic (VGA Style) 15-pin port, DL250 (RS-232C)
EZP-3CBL	Direct Logic PLC RJ11 port, DL340 (RS-232C)
EZP-4CBL-1	Direct Logic PLC 15-pin Dsub port, DL405 (RS-232C)
EZP-4CBL-2	Direct Logic PLC 25-pin Dsub port, DL405, DL350, DL305 DCU, and all DCM's (RS-232C)
EZP-90-30-CBL	GE 90/30 and 90/70 15-pin Dsub port (RS-422A)
EZP-SLC-232-CBL	AB SLC 5/03/04/05 DF1 port (RS-232C)

Accessories and Optional Equipment

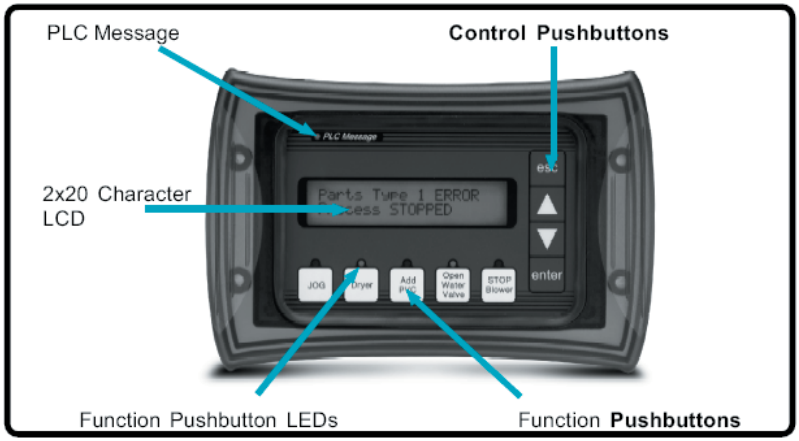
Part Number	Description
EZ-TEXTEDIT-E	EZText Enhnaced Programming Software
EZ-TEXT-S-GSK	Standard Replacement Gasket (small)
EZ-TEXT-L-GSK	Standard Replacement Gasket (large)
EZ-BRK-2	DIN Clips (package of 4)
EZ-TEXT-STUDS	Mounting Studs (package of 4)

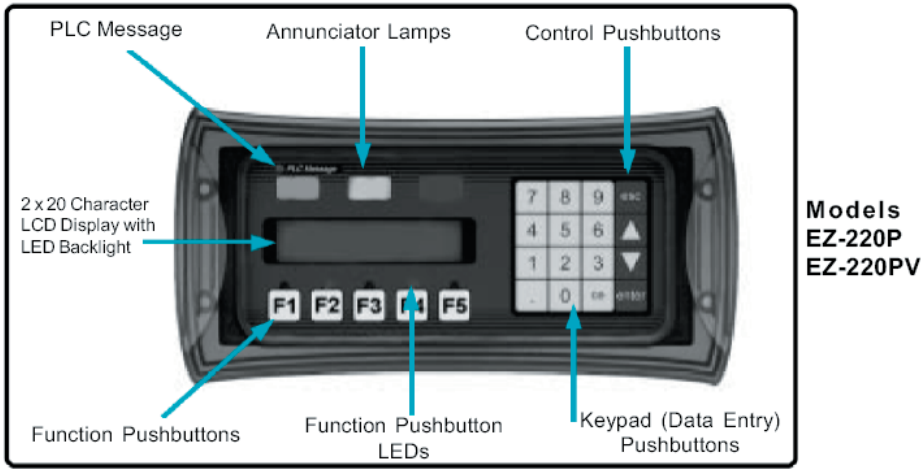
Front Panel Features

In this section, we will describe the front panel features of the EZText Enhanced Panel. Descriptions of the PLC Message LED, Pushbuttons, Pushbutton LEDs, PLC Messages, and Local Messages are provided. To understand the Features, see Chapter 3, *Learning the Features*. For a demonstration of how to program the panel indicators and controls, please refer to Chapter 4, *Tutorial.*

Operator Controls and Indicators

Each EZText Enhanced Panel provides sealed membrane Pushbuttons for operator interface with a PLC. Pushbuttons may be used to begin events or tasks within the PLC, such as Start/Stop Control. Pushbutton inputs are monitored for ON/OFF conditions in your PLC ladder logic program. EZText Enhanced Pushbuttons are Control Pushbuttons or Function Pushbuttons or Data Entry Keypad pushbuttons available in two models (EZ-220P & EZ-220PV).





Annunciator Lamps

The EZ-220P & EZ-220PV models contain 3 tri-color Annunciator Lamps above the LCD message window. Each of these lamps may be programmed to illuminate in green, amber, or red and may be labeled to fit your application. The lamps are turned ON and OFF through your PLC ladder logic program. They are configured with EZText Enhanced Programming Software and may be configured to display status or the condition of any operation being controlled within the PLC.

Data Entry (Keypad) Pushbuttons

The EZ-220P & EZ-220PV also feature a numeric keypad. Use this keypad to enter or change embedded data values. To update or enter a data value, the **enter** button must be pressed to select the data value. Then you may use the numeric keypad or the **UP Arrow** (increment) or **DOWN Arrow** (decrement) to adjust the value. For the PLC to acknowledge the change in value, you must press **enter** again (sends the updated value to the PLC.) The **CE** (Clear Entry) button is used to clear, or set back to zero, the current value.

PLC Message LED

This LED will illuminate to indicate that the PLC has triggered a message that will be displayed in the LCD window. The pushbuttons are disabled for 3 seconds after a PLC message is displayed to ensure that the operator sees the message. The LED will turn OFF when the operator presses the escape pushbutton, thereby acknowledging message received.

Control Pushbuttons
There are 4 Control Pushbuttons on the front panel. These buttons consist of an **esc** (escape), ▲ (UP Arrow), ▼ (DOWN Arrow), and **enter** pushbutton. The arrow buttons are used to scroll through local messages or to change a value within an interactive message. As the operator presses the buttons, the numeric value will increment or decrement, respectively. As it is adjusted, the value WILL NOT BE UPDATED in the PLC data register until the **enter** pushbutton is pressed. When completed, the operator will press the **enter** pushbutton and the value will be written to the PLC. Press **esc** to abort or cancel the adjustment without writing the value to the PLC.

Function Pushbuttons
There are 5 Function Pushbuttons that are user-defined. They may be configured as one of three "switch" types; **Alternate**, **Momentary**, or **Panel Set & PLC Release** (described on page 69.) They are configured as discrete input signals to the PLC. These pushbuttons are labeled **F1** through **F5** or may be **custom labeled** to suit their function or application.

Pushbutton LEDs
There are LEDs located above each of the user-defined pushbuttons. These LEDs can indicate if the pushbutton status condition is ON or OFF, or it can be controlled independently by a PLC. You may choose the type of **LED Control** while configuring your panel (see *Configuration,* Chapter 5). There are three different controls—**By Button**, **By Button & Flash**, or **By PLC**, that will determine LED response when the pushbuttons are pressed.

Character LCD Display with LED Backlight
Messages display in the Character LCD Display Window with LED Backlight. The LCD window supports two line by twenty characters (EZ-220, EZ-220V, EZ-220PV, EZ-220P, & EZ-220L models), or four line by twenty character (EZ-420 models) messages.

Messages

PLC Messages can be programmed to display PLC register values and allow the operator to change a PLC register value. Up to 3 data variables can be programmed to display in each message. The messages are entered using EZText Enhanced Programming Software. Up to 256 **PLC Messages** may be configured and stored in the EZText Enhanced Panel. PLC Messages are numbered 1 to 256. The message control type may be static text, dynamic, or interactive. The PLC logic program controls which messages are displayed. The **PLC Message LED** illuminates when a PLC generated message is being displayed.

Local Messages are also displayed in the LCD Display Window. Local Messages provide pertinent information or instructions to the operator and are displayed in a menu hierarchy. They can also be programmed to display values from a PLC register that the operator may change using the EZText Enhanced control buttons. You may create **Folders** to group messages pertaining to the same topic. Local Messages and Folders can be grouped in up to 3 levels using the EZText Enhanced Programming Software. The first character in a Folder message display is a "+" or "–" indicating folder status (closed or open). The next 19 characters of the display are for the Folder text (Messages do not have a + or -, so all 20

Rear Panel Indicators

TXD LED
This LED will toggle "on" and "off" to signal activity on the transmission line.
RXD LED
This LED will toggle "on" and "off" to signal activity on the receive line.

Specifications

EZText Panel Specifications						
Part Number	**EZ-220**	**EZ-220L**	**EZ-420**	**EZ-220P**	**EZ-220V**	**EZ-220PV**
Description	2x20 LCD display, five user defined pushbuttons, five LEDs	2x20 LCD display, large characters, five user defined pushbuttons, five LEDs	4x20 LCD display, five user defined pushbuttons, five LEDs	2x20 LCD display, numeric keypad, five user defined pushbuttons, three tri-color LED annunciators	2x20 LCD display, five user defined pushbuttons, five LEDs	2x20 VFD display, numeric keypad, five user defined pushbuttons, three tri-color LED annunciators
Display Type	Character LCD, 2 lines by 20 characters w/LED backlight		Character LCD, 4 lines by 20 characters w/LED backlight	Character LCD, 2 lines by 20 characters w/LED backlight	Character VFD (Vacuum Fluorescent Display), 2 lines by 20 characters w/LED backlight	
Character Height	5.55mm (0.22")	8.06mm (0.316")	4.75mm (0.187")	5.55mm (0.22")		
Viewing Angle	+ or - 15 degrees horizontal				+ or - 60 degrees horizontal	
Keypad Overlay	Five user defined pushbuttons and four control pushbuttons			Numeric keypad, five user defined pushbuttons and four control push-buttons	Five user defined pushbuttons and four control push-buttons	Numeric keypad, five user defined pushbuttons and four control push-buttons
Service Power	24 VDC (20-30VDC operating range)					
Power Consumption	4 Watts @ 24 VDC	4.5 Watts @ 24 VDC	4 Watts @ 24 VDC	5.5 Watts @ 24 VDC	6 Watts @ 24 VDC	8.5 Watts @ 24 VDC
Enclosure	NEMA 4, 4X (indoor)					
Agency Approval	UL, CUL, CE					
Operating Temperature	0 to 45 °C (32 to 113 °F)					
Storage Temperature	-20 to 60 °C (-4 to 140 °F)					
Humidity	10 - 95% R.H., (non-condensing)					
Electrical Noise	NEMA ICS 2-230 showering arc ANSI C3790a-1974 SWC Level C Chattering Relay Test					
Withstand Voltage	1000 VDC (1 minute) between power supply input terminal and protective ground (FG)					
Vibration	5 - 55Hz 2 G for 2 hours in the X, Y, and Z axes					
Shock	10 G for under 12 ms in the X, Y, and Z axes					
Burn-in	Temperature cycled 96 hours and then fully functional tested					
LED/LCD Life	100,000 hours					
Serial Communications	Download/Program/PCS Port TS-232/RS422/RS485 15-pin D-sub (female)					
Dimensions	7.418 x 5.00 (188.419 x 126.9989)	10.018 x 5.00 (254.458 x 126.998)	7.418 x 5.00 (188.419 x 126.9989)	10.018 x 5.00 (254.458 x 126.998)	7.418 x 5.00 (188.419 x 126.9989)	10.018 x 5.00 (254.458 x 126.998)
Weight (lbs)	.65	.85	.65	.85	.65	.85

Hardware Installation

2

In this chapter....

- — Custom Labels
- — EMI Noise Filter Installation
- — Mounting
- — DIN Clip Mounting
- — Connections and Wiring

Custom Labels

Create Custom Labels

You may create custom labels for the EZText Enhanced Function Pushbuttons that are particular to their function within your application. The labels slide into an existing slot in the panel overlay so that the text or numbers you have printed will rest over the pushbuttons.

A Microsoft Word® document (EZ-TEXT_INSERTS.doc) is installed in the EZText Enhanced Program folder on your computer when you installed your programming software. You must have Word installed on your computer to open this document. This document will help you create your labels. Two sheets of cover stock have also been shipped with your panel.

Install Custom Labels

A 1/2-inch x 4-inch flat metal tool (ramp tool) is shipped with each unit to aid in the installation of the label inserts.

To install the pushbutton labels into the slots, perform the following steps.

1. Carefully remove rubber trim mold from panel front to access label slots. (The trim has a barbed retaining rib that is pressed securely into a channel in the front panel housing.) The ramp tool can be used to help lift the trim (see illustration #1).

2. The recessed slot(s) where the labels are inserted should now be visible.

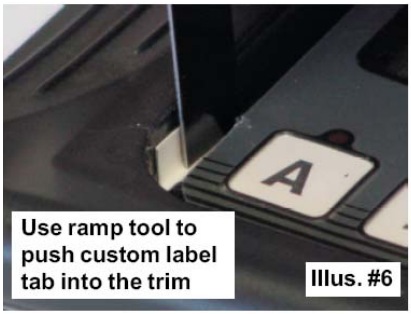
3. Remove the factory installed label insert.

4. Use the corner of the ramp tool to lift the top layer of the overlay (shown in illustration #3), just enough to place the custom label into the slot. Hold the overlay up with the ramp tool and start the custom label into the slot (illustration #4).

5. Once the label has been placed into the slot, move the ramp tool behind the label insert and use as a ramp to guide the label insert into the slot until properly positioned (illustration 5).

6. Push label tab down into trim channel with the ramp tool (illustration 6).

7. Replace the rubber trim by firmly pressing the barbed rib into the molded channel in the front panel housing.



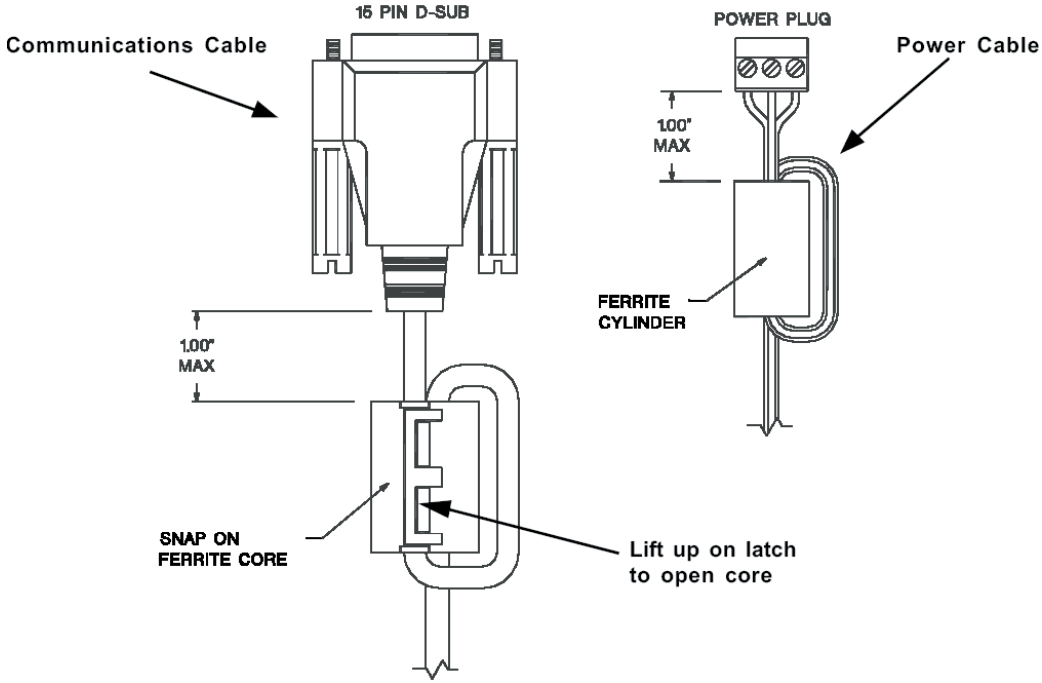
New Function Key Label installed →

EMI Noise Filter Installation

EZText Enhanced Panels are supplied with two ferrite cores that should be attached to the cables prior to installation of the EZText Enhanced Panel. These cores are *required to suppress EMI emissions* that are conducted through the Power Cable and the Communications Cable. The figure, below, shows the ferrite cores properly installed. Attach the cores within one inch of the EZText Enhanced connector. The cable should be snugly wrapped once around the core, providing two passes through the core.

The **Power Cable Core** is a solid ferrite cylinder. The Power Cable should pass once through the core, be looped around and pass through a second time. Pull the excess cable so that it rests snugly against the outside of the core.

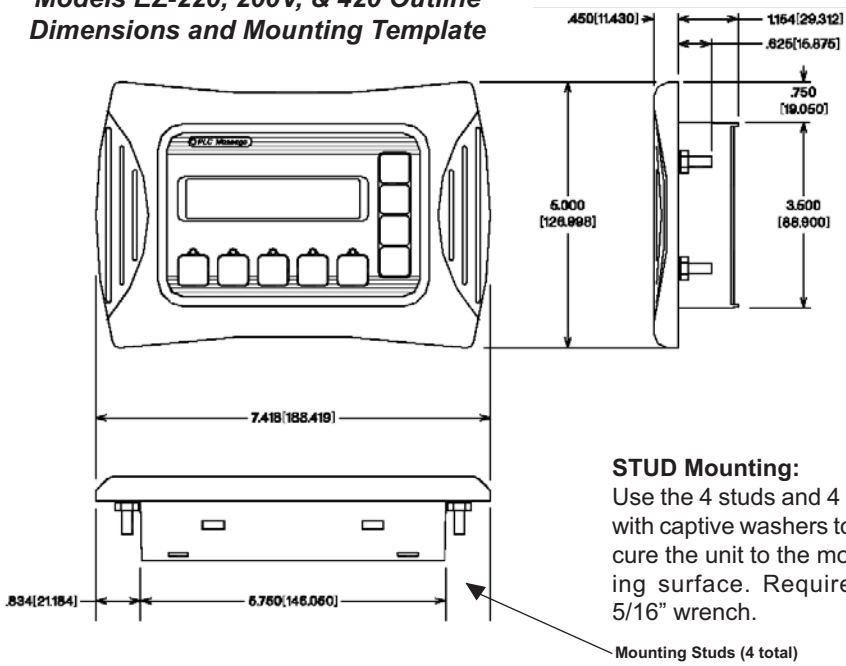
The **Communications Cable Core** is a snap-together, split, ferrite core. This core can be installed on a finished cable. Lift the latch to open the core. Wrap the wire through the core center, snugly around the outside, and again through the center. Close the core until the latch snaps. Ensure that the cable jacket is not pinched between the two halves of the core. The finished cable should look similar to the drawing shown below.



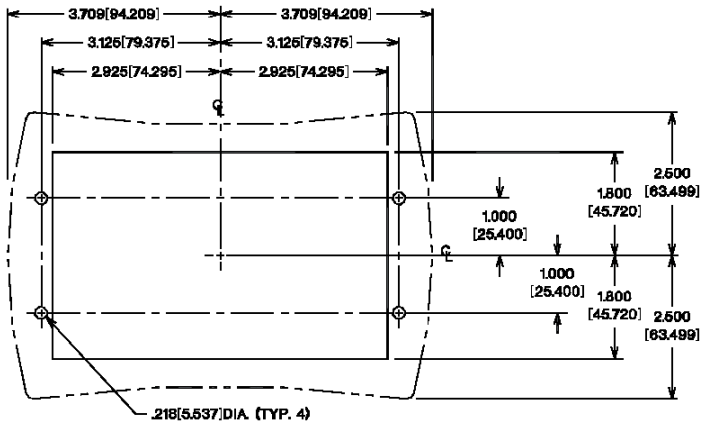
Mounting

EZText Enhanced Panels can be mounted in two different ways: Stud Mounting and DIN Clip Mounting. The panel comes with all the necessary mounting hardware required for stud mounting. DIN Clips (P/N EZP-BRK-2) must be ordered separately.

Models EZ-220, 200V, & 420 Outline Dimensions and Mounting Template

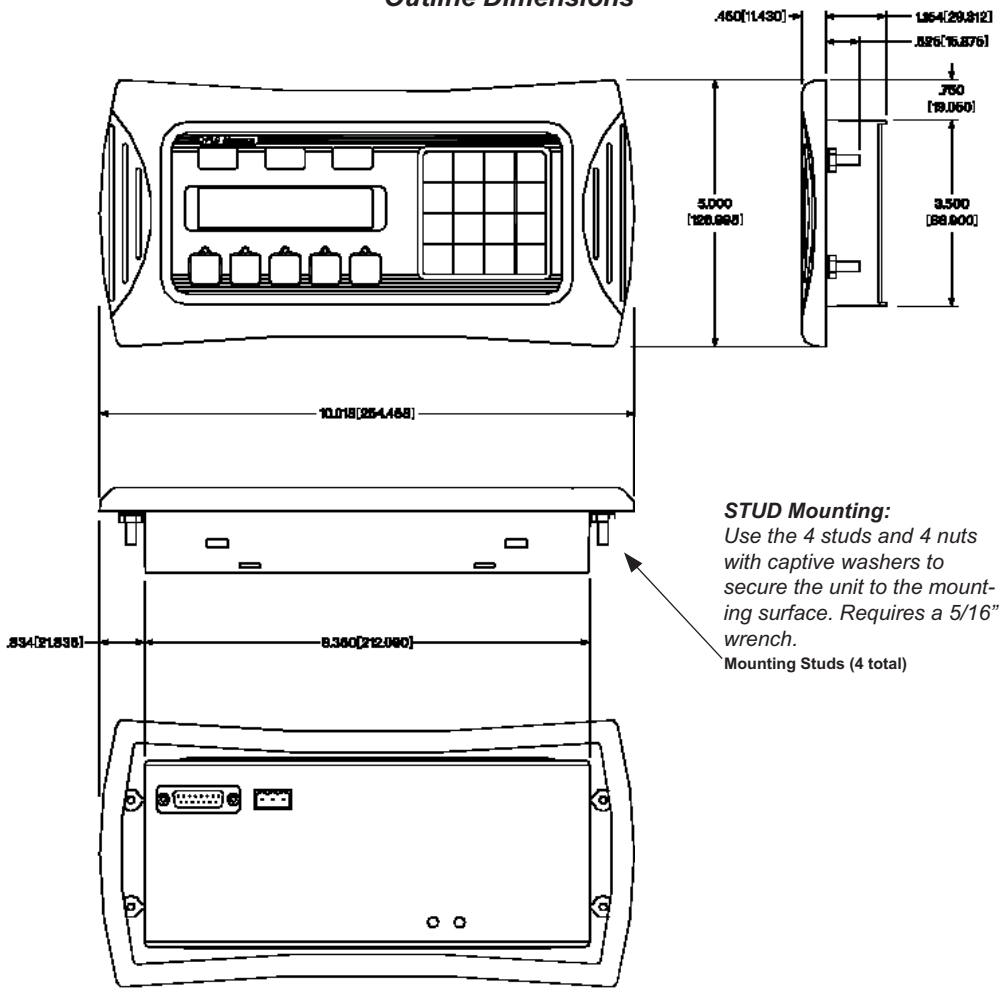


STUD Mounting:
Use the 4 studs and 4 nuts with captive washers to secure the unit to the mounting surface. Requires a 5/16" wrench.



Mounting Template

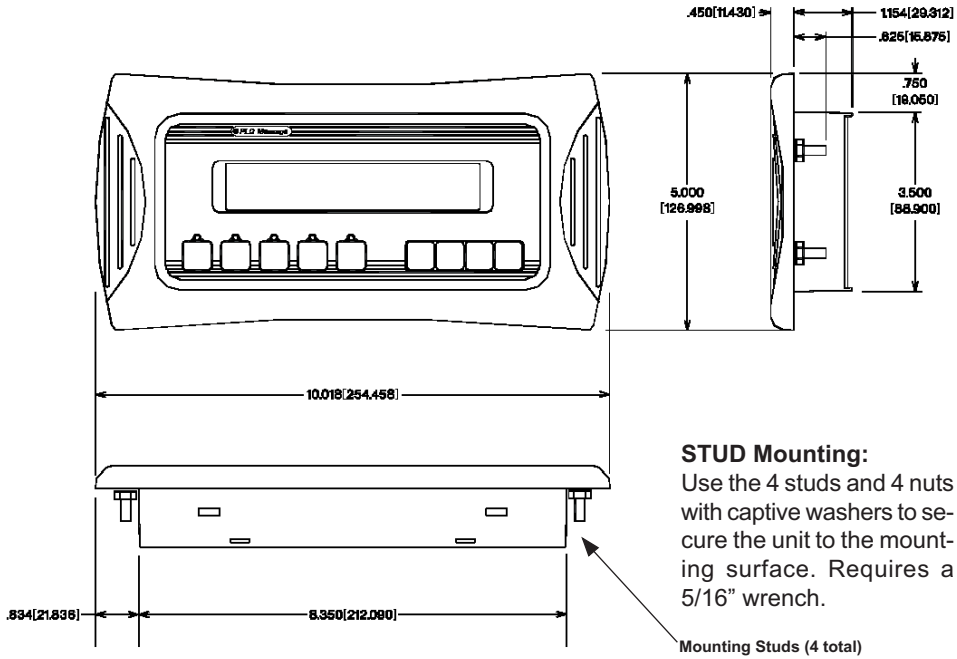
Model EZ-220P/EZ-220PV
Outline Dimensions



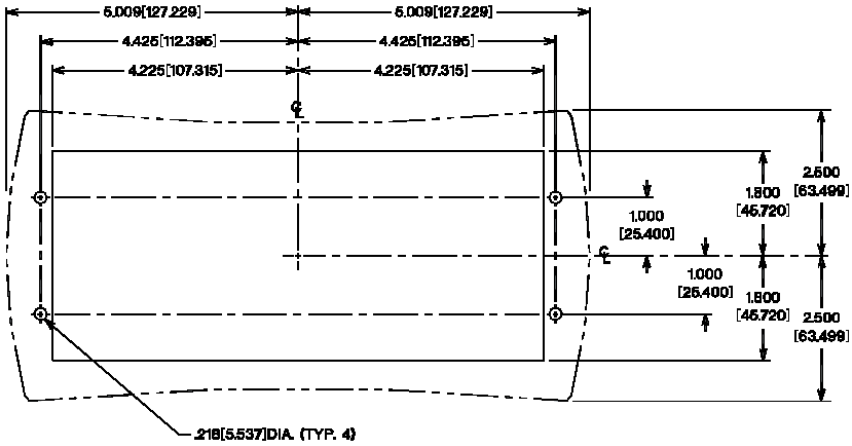
STUD Mounting:
Use the 4 studs and 4 nuts with captive washers to secure the unit to the mounting surface. Requires a 5/16" wrench.

Mounting Studs (4 total)

Model EZ-220L Outline Dimensions and Mounting Template



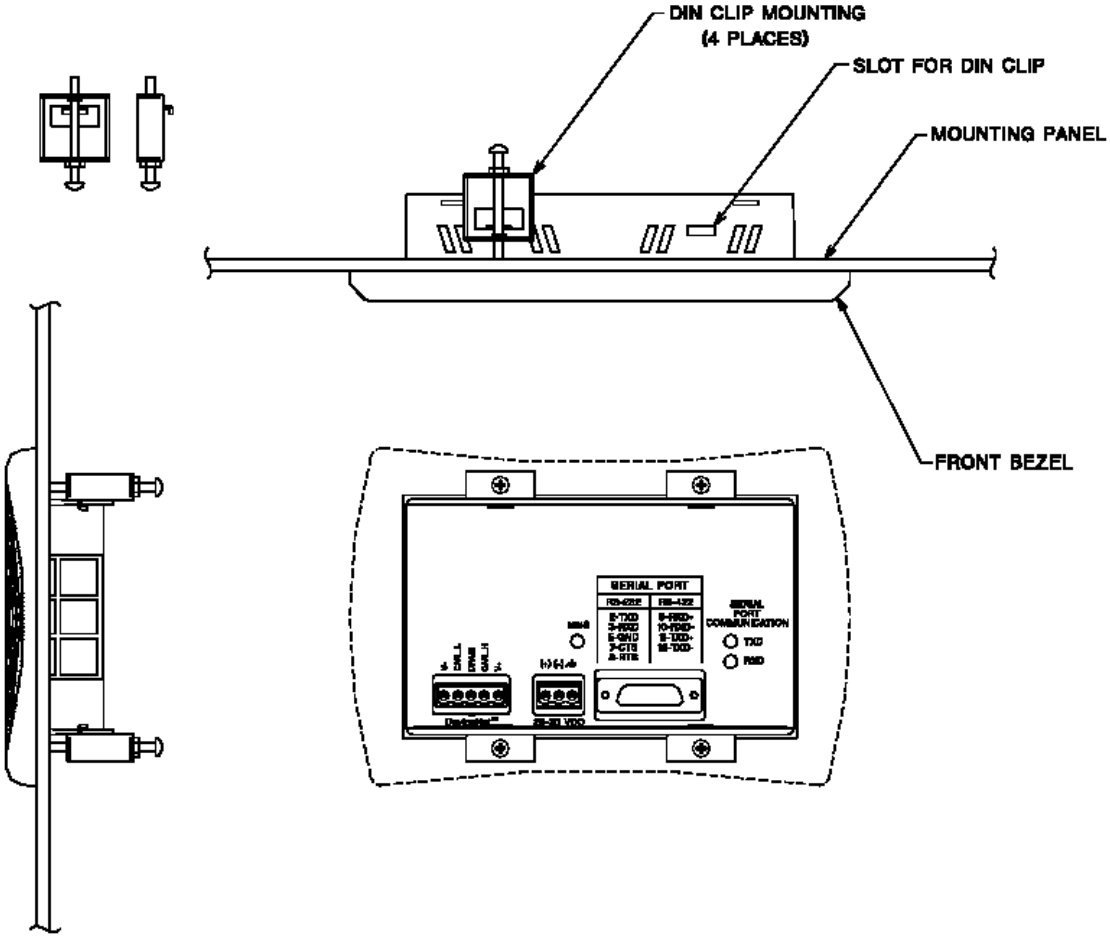
STUD Mounting:
Use the 4 studs and 4 nuts with captive washers to secure the unit to the mounting surface. Requires a 5/16" wrench.



Mounting Template

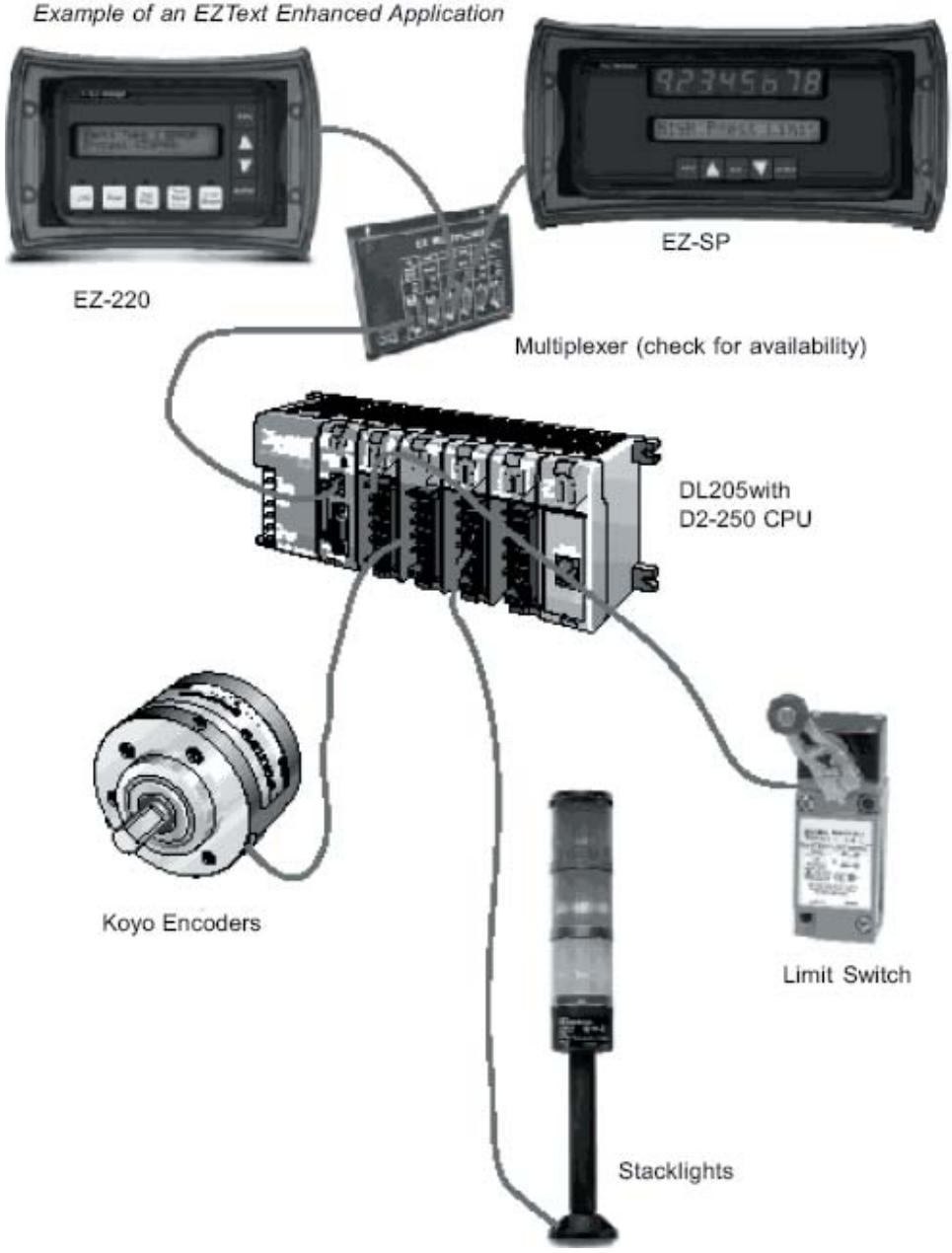
DIN CLIP Mounting

DIN Clips (P/N EZ-BRK-2) are metal brackets that attach to the panel and secure the front bezel to a mounting surface with a screw. They provide an alternative to bolting the panel into the mounting surface. There are 4 square holes in the chassis (two on the top and two on the bottom). Insert the clip flange into this hole and secure the EZText Enhanced Panel by tightening the DIN CLIP screw until the front bezel is firmly pressed to the mounting surface.



Connections and Wiring

Example of an EZText Enhanced Application

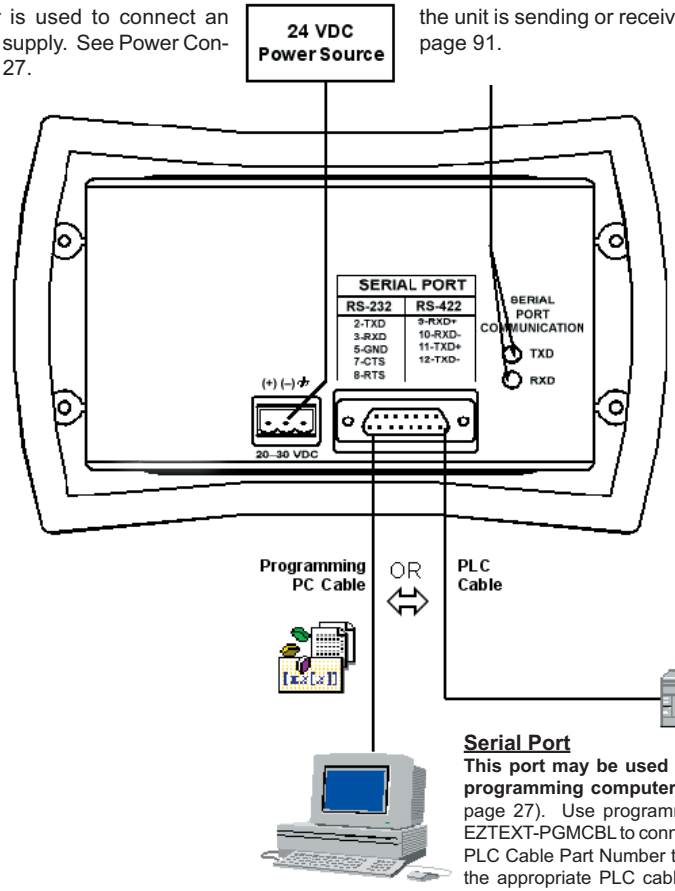


EZ-220, EZ-220V & EZ-420 Connections and Wiring

Rear View

Power Connector
Block style connector is used to connect an external 24VDC power supply. See Power Connector Pinout on page 27.

Serial Port Communication LEDs
These LEDs illuminate to show whether the unit is sending or receiving data. See page 91.



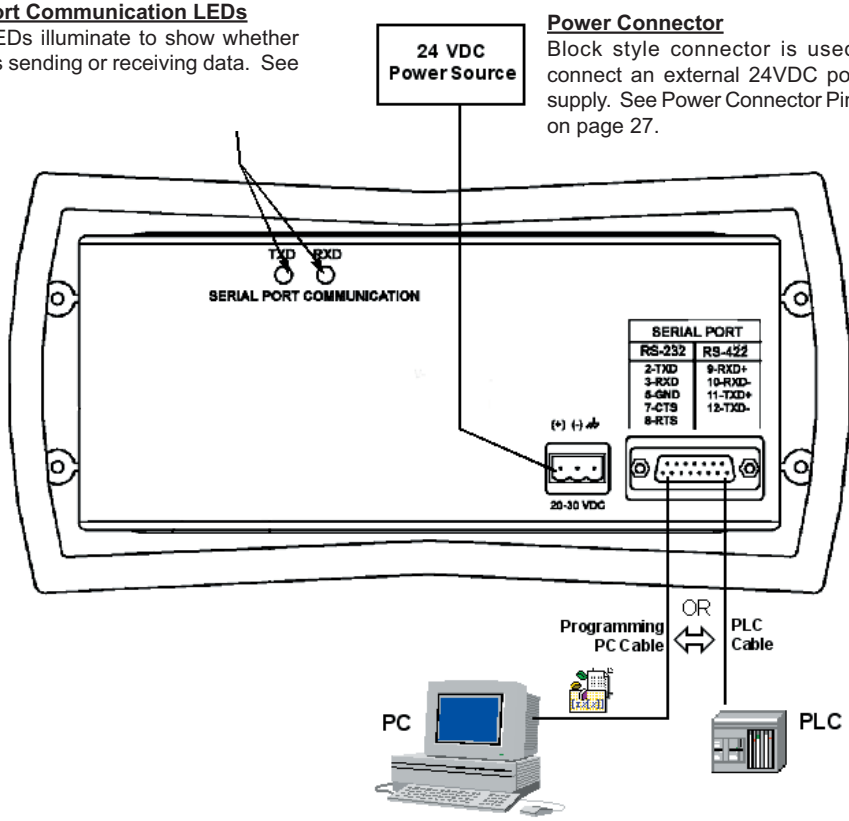
Serial Port
This port may be used to connect the programming computer or a PLC (see page 27). Use programming cable P/N EZTEXT-PGMCBL to connect the PC. See PLC Cable Part Number table, page 9 for the appropriate PLC cable used by your application. Block style connector is used to connect an external 24VDC power supply. See Power Connector Pinout on page 27.

EZ-220P & EZ-220PV Connections and Wiring

REAR VIEW

Serial Port Communication LEDs
These LEDs illuminate to show whether the unit is sending or receiving data. See page 91.

Power Connector
Block style connector is used to connect an external 24VDC power supply. See Power Connector Pinout on page 27.

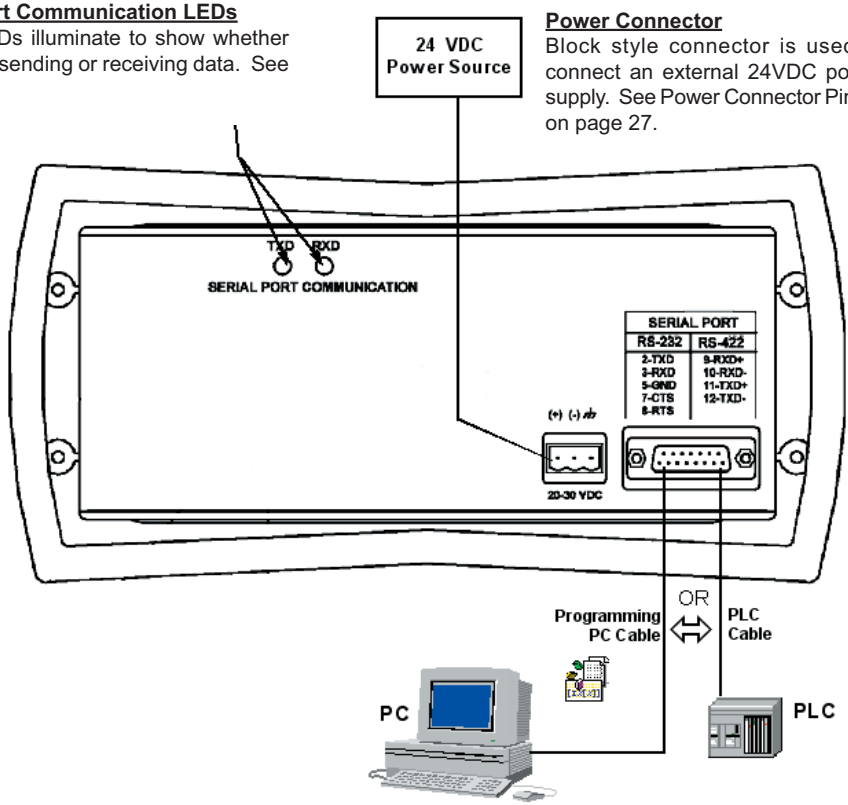


Serial Port
This port may be used to connect the programming computer or a PLC (see page 27). Use programming cable P/N EZTEXT-PGMCBL to connect the PC. See PLC Cable Part Number table, page 9 for the appropriate PLC cable used by your application. Block style connector is used to connect an external 24VDC power supply. See Power Connector Pinout on page 27.

EZ-220L Connections and Wiring

Rear View

Serial Port Communication LEDs
These LEDs illuminate to show whether the unit is sending or receiving data. See page 91.



Power Connector
Block style connector is used to connect an external 24VDC power supply. See Power Connector Pinout on page 27.

Serial Port
This port may be used to connect the programming computer or a PLC (see page 27). Use programming cable P/N EZTEXT-PGMCBL to connect the PC. See PLC Cable Part Number table, page 9 for the appropriate PLC cable used by your application. Block style connector is used to connect an external 24VDC power supply. See Power Connector Pinout on page 27.

Power Connector

This block style connector is used to connect an external 24 VDC power supply. The connector with screw terminals is provided with your EZText Enhanced Panel and allows you to plug into the power receptacle. A pinout is shown below. An external power supply is adapted to supply operating voltage to the EZText Enhanced Panel. The power supply must deliver a range of 20 to 30 VDC.

In multi-panel applications, if separate power supplies are used, please ensure the electrical ground common does not have a great potential difference. In a multi-panel application, the power supply must maintain the specified voltage and current consumption under all conditions (this includes powerup) for each of the individual units. Please refer to the specifications on page 14 for the individual units.

Pin #	Connection	
1	+V	24VDC (20–30 VDC)
2	–V	
3	Chassis Ground	

Connect (+) on the unit to the (+) lead of your power source; (-) on the unit is connected to the (-) lead; and chassis GND (on the unit) is connected to the chassis ground of the cabinet. It is recommended you use a regulated power source isolated from relays, valves, etc.

Serial Port

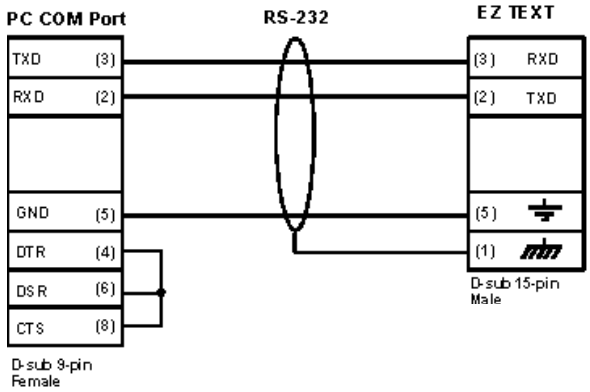
The **Serial Port** may be used to connect your panel to a programming computer (PC) or a Programmable Logic Controller (PLC). You will only need to connect to a PC when you initially configure and program the EZText Enhanced Panel. The Serial Port is then available for connection to the PLC. When you power up the EZText Enhanced Panel, it will come up in RUN Mode. While in RUN Mode the Serial Port will only communicate with a PLC. To program the panel and have the Serial Port communicate with a PC, you will have to enter the SETUP Mode (see following paragraph).

Connect a Programming PC

To program the EZText Enhanced Panel, you must put the panel into SETUP Mode. When the panel is powered up, it will be operating in the RUN Mode. To enter the SETUP Mode, you must press and hold the UP Arrow button while simultaneously pressing the DOWN Arrow button. (Please Note: While in the SETUP Mode you may also adjust the screen contrast by pressing the UP or DOWN Arrow buttons—ensure that you are in SETUP Mode!)

The EZText Enhanced Panel is configured using a PC running the EZText Enhanced Programming Software. When you are ready to download the program, connect the programming cable (P/N EZTEXT-PGMCBL) to the serial port of the panel and the serial port of the PC. A wiring diagram follows.

P/N EZTEXT-PGMCBL



Connect a PLC

Connect your PLC to the EZText Enhanced Panel with one of the cables listed below.

Part Number	Cable Description
EZP-2CBL	Direct Logic PLC RJ12 port, DL05, DL105, DL205, DL350 & DL450 (RS-232C)
EZP-2CBL-1	Direct Logic (VGA Style) 15-pin port, DL250 (RS-232C)
EZP-3CBL	Direct Logic PLC RJ11 port, DL340 (RS-232C)
EZP-4CBL-1	Direct Logic PLC 15-pin Dsub port, DL405 (RS-232C)
EZP-4CBL-2	Direct Logic PLC 25-pin Dsub port, DL405, DL350, DL305 DCU, and all DCM's (RS-232C)
EZP-90-30-CBL	GE 90/30 and 90/70 15-pin Dsub port (RS-422A)
EZP-SLC-232-CBL	AB SLC 5/03/04/05 DF1 port (RS-232C)
EZP-PLC5-232-CBL	AB PLC5 DF1 port (RS-232C)
EZP-MLOGIX-CBL	AB Micrologix 1000, 1200 & 1500 (RS-232C)
EZP-MITSU-CBL	Mitsubishi FX Series 25-pin port (RS-422A)
EZP-MITSU-CBL-1	Mitsubishi FX Series 8-pin (RS-422A)
EZP-OMRON-CBL	Omron C200, C500 (RS-232C)
EZP-S7MPI-CBL	Siemens 7 MPI Adaptor (RS-232C)
EZTEXT-PGMCBL	EZText Programming Cable
EZP-CTRLUNI-CBL	Control Techniques Uni-drive 4-wire 9-in D-shell female connector (RS-422)
EZP-ARCOL-CBL	Aromat PLC, 5-pin Mini DIN male port (RS-232C)
EZP-CTCBI-CBL	CTC PLC, RJ-12 port (RS-232C)
EZP-MODRTU-CBL	Modicon PLC, 9-pin D-shell male port (RS-232C)
EZP-TX505-CBL	Texas Instruments 505 series PLC, 9-pin D-shell female port (RS-232C)
EZP-IDECS-CBL	Idec MicroSmart PLC 8-pin Mini DIN male port (RS-232C)
EZP-TX545-CBL	TI545-1102 series PLC, 9-pin D-shell male port (RS-232C)
EZP-TX545-CBL1	TI 545-1104 series PLC 9-pin D-shell female port (RS-232C)

Learning the Features

3

In this chapter....

- — Learning the Features
- — Memory Mapping/PLC Data Registers
  - — Pushbuttons
  - — LEDs
  - — PLC Message
  - — Embedded Data
- — PLC and Local Messages
  - — Message Types
- — Displaying PLC Messages
- — PLC Messages LED
- — Displaying Local Messages
  - — Local Message File Structure Example
  - — Local Message Menu Structure Example

Learning the Features

In this section, we will help you to learn and understand the Features of the EZText Enhanced Panels. Details for using pushbuttons, LEDs, PLC messages, and Local Messages are discussed. We recommend that you read this chapter well before you attempt to configure and use the EZText Enhanced Panel features and controls. As you proceed through this section, relate the topics discussed with how you will implement your panel.

Regardless of the PLC product type, the concepts discussed here are applicable. DirectLogic PLCs are used in any examples of addressing and ladder logic, but the principles can be applied to any type PLC. Once again, this section is showing "concepts" for using the panel features. For complete DirectLogic examples and other PLC solutions, such as Allen-Bradley, please refer to the PLC manufacturer's manual.

NOTE: Features marked with an "*" are only available in models EZ-220P & 220PV.

- Memory Mapping/PLC Data Registers

  Pushbuttons Register
  LEDs Register
  Annunciator Lamps Register*

  PLC Message Registers

  Embedded Data Registers
- PLC and Local Messages
  — Embedded Data
  — Message Types
  Static
  Dynamic
  Interactive
  Passwords*
- Displaying PLC Messages
- PLC Messages LED
- Displaying Local Messages
- Arrow Adjustment Entry*
- Numeric Keypad Entry*
- Annunciator LEDs*

Memory Mapping/PLC Data Registers

The EZText Enhanced Panels communicate with the PLC through user-defined PLC data registers. PLC registers are assigned during configuration using the EZText Enhanced Programming Software. For discrete operations, such as pushbuttons and LEDs, the register bits are accessed by the PLC control program. The following page shows how the pushbuttons and LEDs are assigned to the PLC bit registers.

Pushbuttons

Pushbuttons use one 16-bit register. All bit designations are in octal (0–7 and 10–17), used by DirectLogic PLCs. Use bits 0 through 15 for PLCs using decimal numbering. Address used here must be READ/WRITE.

BUTTONS (BIT WRITE) PLC WORD — (FROM PANEL)

17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
NA	NA	NA	ACK F5	ACK F4	ACK F3	ACK F2	ACK F1	♦	•	ENT	F5	F4	F3	F2	F1

Please NOTE:
Any unused bit address should not be used in your PLC program. The panel will control the unused bits.

F1–F5 = Function Pushbuttons 1–5
ENT = Enter
□□ = Arrow UP/DOWN
ACK F1–F5 = Panel acknowledge of PLC button release
NA = not used (Do not use for other PLC program addresses)

Bits 0–7 are set when pressing the corresponding button on the panel.

Bits 10–14 are set when the **Panel Set and PLC Release** Option is selected for the corresponding Function Pushbutton and the Release Bit for that button is set by the PLC in the LED (BIT READ) PLC WORD.

LEDs

LEDs use one 16-bit register. All bit designations are in octal (0–7 and 10–17), used by DirectLogic PLCs. Use bits 0 through 15 for PLCs using decimal numbering.

17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
NA	NA	NA	REL F5	REL F4	REL F3	REL F2	REL F1	NA	NA	NA	LED5	LED4	LED3	LED2	LED1

LED (BIT READ) PLC WORD — (TO PANEL)

LED1–LED5 = Only used when **By PLC** has been chosen.
REL F1–REL F5 = Used by PLC to release a button that is set by the panel.
NA = not used (Do not use for other PLC program addresses)

Example when using Panel Set & PLC Release Option for a Function Pushbutton:

Operator Presses Button:
F1 is set by the Panel (Bit 0 in Button Word).
This is a maintained pushbutton to the PLC.

PLC Releases Button:
REL F1 is set by the PLC (Bit 10 in LED Word).
The PLC resets the panel button by setting this bit in the ladder program.

Panel Acknowledge Button Release:
ACK F1 is set by the Panel (Bit 10 in Button Word).
This is the panel acknowledging to the PLC that it has reset the button.

Annunciator Lamps

Annunciator Lamps use one 16-bit register. All bit designations are in octal (0–7 and 10–17), used by DirectLogic PLCs. Use bits 0 through 15 for PLCs using decimal numbering.

ANNUNCIATOR (BIT READ) PLC WORD — (TO PANEL) (BITS)

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	LAMP 3	LAMP 3	LAMP 2	LAMP 2	LAMP 1	LAMP 1

LAMP 1 = Left Lamp, Bits 0 and 1
LAMP 2 = Center Lamp, Bits 2 and 3
LAMP 3 = Right Lamp, Bits 4 and 5
NA = not used (DO NOT use for other PLC program addresses)

To have the lamps illuminate in a particular color, or not to illuminate at all, set the bits in your PLC Ladder Logic as follows:

Color	LAMP 1		LAMP 2		LAMP 3	
	BIT 0	BIT 1	BIT 2	BIT 3	BIT 4	BIT 5
OFF	OFF	OFF	OFF	OFF	OFF	OFF
Red	ON	OFF	ON	OFF	ON	OFF
Amber	ON	ON	ON	ON	ON	ON
Green	OFF	ON	OFF	ON	OFF	ON

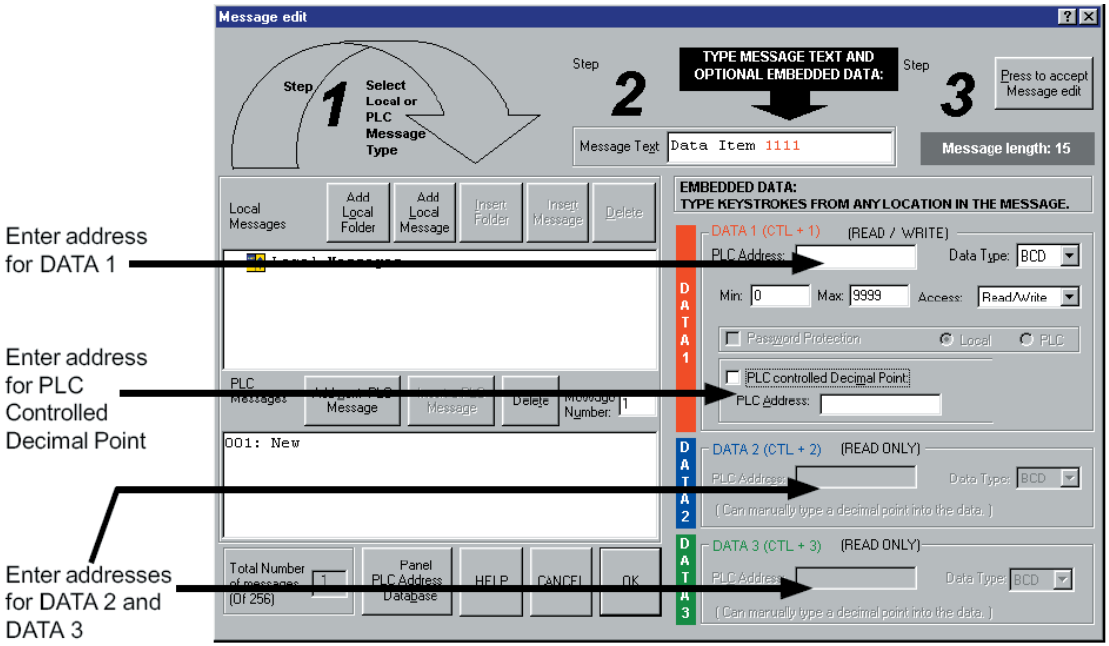
PLC Message Registers

The EZ-220, EZ-220V, EZ-220L, EZ-420, EZ-220P, and EZ-220PV panels have 2 or 4 lines of PLC Message display. Each message line references a user-defined register in the PLC. The registers are assigned using the EZText Enhanced Programming Software. The panel monitors each register for a value (message number) and displays the message associated with the value (i.e., a value of 3 displays message 3).

Embedded Data Registers

Each message can have up to three embedded data values, DATA 1, DATA 2, and DATA 3. Embedded data registers are user-defined.

DATA 1 (16-Bit Register, **READ/WRITE**)
This is a PLC register that contains the first of three possible embedded data values on a line for the message displayed. DATA 1 can be set as a READ/WRITE Register allowing the operator to change a data value. It can also be set to READ ONLY. This is the only data value that has this option.



PLC CONTROLLED DECIMAL POINT (16-Bit Register)
This is a register in the PLC for controlling a decimal point within an embedded data value (DATA 1 only). One register holds the value and the other controls the decimal point. The register addresses are assigned from the **Message Edit** screen as shown above. No ASCII characters are allowed in DATA 1 with a PLC controlled decimal point.

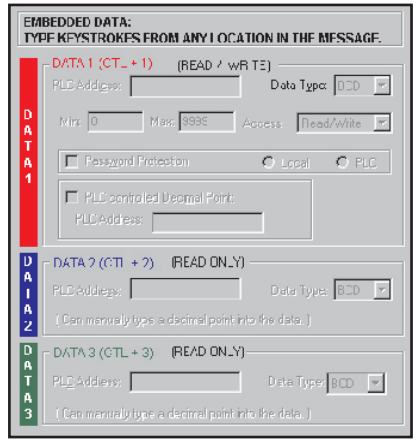
DATA 2 (16-Bit Register, **READ ONLY**)
This is a PLC register that contains the second of three possible embedded data values on a line for the message displayed. You may *manually* insert a decimal point. The **PLC Address** and **Data Type** are assigned from the **Message Edit** screen, shown above.

DATA 3 (16-Bit Register, **READ ONLY**)
This is a PLC register that contains the third of three possible embedded data values on a line for the message displayed. You may *manually* insert a decimal point. The **PLC Address** and **Data Type** are assigned from the **Message Edit** screen, shown above.

PLC Messages and Local Messages

Embedded Data

The user message contains the ASCII characters and optional embedded data to be displayed. The embedded data can be up to 3 different values — **DATA 1, DATA 2, and DATA 3.**



Special characters in the message determine where the embedded data from the registers should go. When programming, each character for **DATA 1** values will be represent by a "1" for up to five digits. For example, if you want to display a five digit value from the PLC, you will press Ctrl + 1 or F5, five times, and "11111" will display in your message (in red) representing the five digit value.

Please NOTE: When selecting BCD Data Type, only a 4-digit value can be used (0–9999).

Only **DATA 1**'s embedded value can be **Interactive (READ/WRITE register)**, meaning that data values will display and can be changed from the message. **DATA 2** and **DATA 3** are **Dynamic (READ ONLY register)** meaning that they will display a value, but the value cannot be changed from the message. **DATA 2** values are entered into the message by pressing Ctrl +2 or F6, and are represented by a "2" for each numeric digit, displayed in blue. **DATA 3** values are entered into the message by pressing Ctrl +3 or F7, and are represented by a "3" for each numeric digit, displayed in green. Again, these values can be up to five digits. Data values are only represented by a "1," "2," or "3" when you are programming the message. The actual values will be displayed on the EZText Enhanced Panel LCD Display window, or will be blank if no value is present. (Password Protection is only available with EZText Enhanced Panel Models EZ-220P and EZ-220PV.)

For **DATA 1**, you can select a minimum and maximum range for the embedded data value. The *Maximum* is to test for the upper limit for the data value and *Minimum* is to test for the lower limit for the data value. This will let the user update the value between the ranges. Data values are incremented or decremented with the **UP/DOWN Arrow** Buttons.

Also for **DATA 1**, you can choose to have the Decimal Point in the value controlled by the PLC, or you can manually insert it in the message.

Message Types

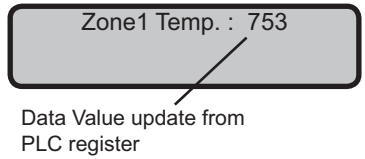
There are three types of messages: Static, Dynamic, and Interactive identify the different message types.

Static Messages

Static Messages are text displays that have NO embedded data. The Static Message may be displayed when an event or condition becomes true. You will enter the messages using the EZText Enhanced Programming Software.

Dynamic Messages

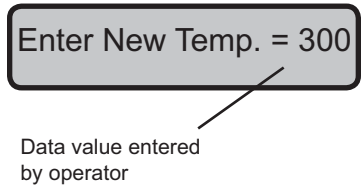
Dynamic messages are text messages that include embedded data. These messages are used to display values from the PLC (READ only access to a PLC register). This data is information that helps the operator closely monitor and/or control the machine or process.



Embedded Data Values in messages can be of two types — BCD or Binary. DATA 1 can have a decimal point controlled by the PLC or manually inserted. DATA 2 and DATA 3 allow you to manually insert a decimal point. The maximum number of data values per message is three. Data type and decimal points are programmed when configuring the message from the Message Edit screen.

Interactive Messages

(With an embedded DATA 1 value, only). An Interactive Message is commonly used for operator data entry. This type of message is used for changing values that are stored in the PLC registers (READ/WRITE access). These values are typically; Setpoint, Upper and Lower Limits, etc. Interactive Messages may be configured to enter data using the **UP/DOWN Arrow** buttons.



Displaying PLC Messages

PLC Messages are triggered by the PLC. The PLC Message LED will illuminate to let you know that the PLC has generated the message. You cannot press the **esc** key to exit the PLC Message mode until 3 seconds after the message has been triggered. This delay is to ensure that the message has been seen

by the operator. After the 3 seconds, press the **esc** key and you will return to Local Message mode. If you press the **esc** key again, the last PLC Message will be redisplayed.

Static Message Operation
To display a Static PLC message, you simply put the message number (1–256) in the appropriate PLC register. These messages are text only, no embedded data.

Dynamic Message Operation
Dynamic messages are text messages that include embedded data. These messages present the operator with important PLC data. You may program message numbers 1–256 to be used as dynamic messages. Dynamic messages may be displayed on either the top or bottom line. The maximum number of digits that may be displayed is five (if Binary data format or four if BCD). Use the EZText Enhanced Programming Software to configure Dynamic messages. See Section 7*, Configuration,* for more information.

Interactive Message Operation
An interactive message is a text display that allows operator data entry. Use these messages to enter or change values that are stored in PLC registers. When the interactive message is displayed, the operator can enter data. Check the PLC product user manual to verify which data formats are supported. Depending on the PLC, the data format will be either Binary or BCD (Binary Coded Decimal). Five digits may be entered in a 16-bit register using Binary data format. Four digits may be entered in a 16-bit register using BCD data format.

Interactive messages are configured within the EZText Enhanced Programming Software by embedding a DATA 1 value in a PLC message. An interactive message requires that you define the Format (Binary or BCD), and Decimal Point Position. There are two types of decimal point placements — PLC controlled and fixed placement (decimal point entered between characters when configuring the message). A PLC controlled decimal is only allowed in DATA 1. DATA 2 and DATA 3 allow you to enter a fixed point (manually inserted). Two PLC registers are used to store PLC controlled decimal point values, one for the data value and the other for decimal point control. When the decimal point is PLC controlled it must be configured in your PLC logic program. For more information, see Chapter 5, *Configuration,* or your PLC Configuration Manual.

Arrow Adjustment Entry

Arrow adjust is often used when minimum and maximum setpoint ranges are required or a setpoint value requires only minor adjustment. These arrow adjustments are only possible using the **UP** or **DOWN Arrow** pushbuttons.

As you press the **UP** and **DOWN Arrow** pushbuttons, the numeric value will increment (up) or decrement (down) one count at a time. When the UP/DOWN Arrow buttons are used to increment or decrement a value, the cursor is disabled and will not be visible again until you press **enter**, **esc**, or return from an error or PLC message. Also, the longer you hold the key down, the faster the count will increase. When the adjustment is complete, press the **enter** pushbutton, and the value will be placed in the data register for display and the bit is set.

*Numeric Keypad Entry

Numeric Keypad entry is used when a decimal point is being used and is the preferred method for data entry instead of arrow adjust. The decimal point button must be used when entering a decimal value.

*Annunciator Lamps

There are three tri-color lamps located above the LCD Message Display. They can be illuminated as red, amber or green through the PLC program.

PLC Message LED

The PLC Message LED will illuminate any time a PLC message is being displayed. Press the **esc** key to exit the PLC message and return to Local Messages. Press **esc** again to re-display the last PLC message.

*These features are only available in models EZ-220P and EZ-220PV.

Displaying Local Messages

In a **Local Message**, the first message (root level) or folder in the hierarchy is displayed on the top line at start up and the following message or folder is displayed on the second line.

A plus (+) is displayed in front of a folder's or subfolder's name if it is closed. If a folder or subfolder is open, a minus (–) is placed in front of the name. Any messages within that folder will be displayed below it.

+Local Folder 1
+Local Folder 2

–Local Folder 2
Local Message 2.1

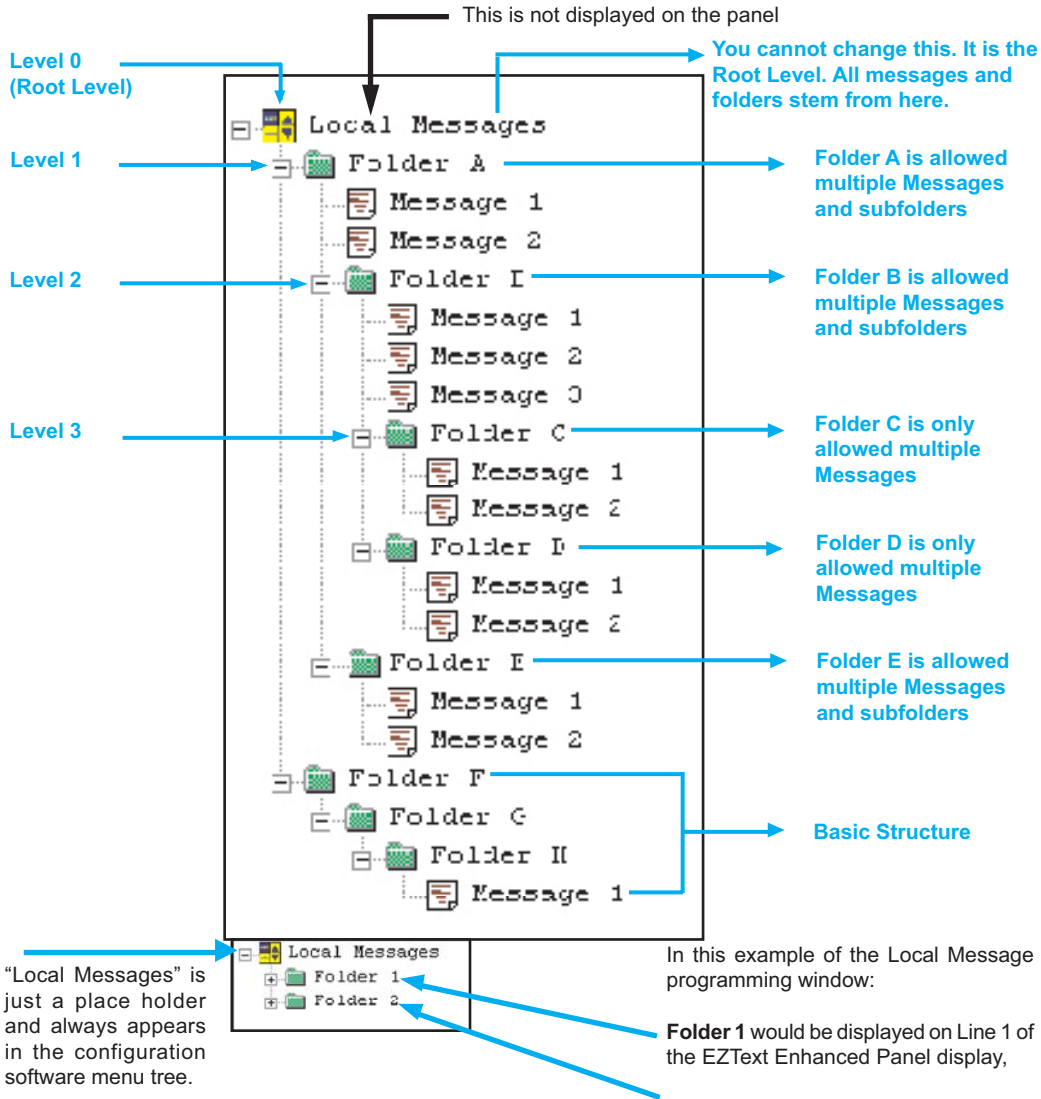
Therefore, a folder is limited to 19 characters after the + or -, a message allows 20 characters. (The EZText Enhanced Programming Software only allows 19 characters for folder text when you are configuring the Local Messages.)

You may use the **UP/DOWN** Arrow buttons to scroll down to the next message in that folder. At the end of the messages for that folder, you can press the **esc** button to move to the previous folder or level.

The **Local Message** menu hierarchy can only extend three levels deep (after the root level) but each folder (level 1 and level 2) may have many subfolders or messages on that level. Folder level 3 may have many messages, but no folders. Messages can contain up to three embedded data values. See the following examples of a menu tree and how it may appear from within the EZText Enhanced Programming Software and how it may appear on your display.

Local Message File Structure Example

(as seen when configuring messages in the EZText Enhanced Programming Software)



A plus (+) is displayed in front of the folder icon if it is closed. If a folder is open, a minus (–) is placed next to the folder icon, and any message in that folder will be displayed.

Local Message Menu Structure Example

(as would be seen on the EZText Enhanced Display, except that Levels are indented here to make them easier to see.)

Viewing the menu from the root (*A folder is also counted as a message.)*

Local Messages (Root)

Message 1 *(Root message)*
Message 2 *(Root message)*
+Folder A *(Folder is closed, but it contains 3 messages and two subfolders with 3 messages each)*
Message 16 *(Root message)*
Message 17 *(Root message)*
+Folder D *(Folder is closed, but it contains 5 messages and one subfolder also with 5 messages)*
Message 29 *(Root message)*

Viewing the menu from open Folder A

–Folder A *(Folder is open and it contains 3 messages and one subfolder with 3 messages)*
Message 4 *(Folder A message)*
Message 5 *(Folder A message)*
+Folder B *(Folder is closed, but is contains 3 messages and one subfolder also with 3 messages)*
Message 14 *(Folder A message)*

Viewing the menu from open Folder B

–Folder B *(Folder is open and it contains 3 messages and one subfolder with 3 messages)*
Message 7 *(Folder B message)*
Message 8 *(Folder B message)*
Message 9 *(Folder B message)*
+Folder C *(Folder is closed, but it contains 3 messages)*

When a folder is opened, a minus sign "–" appears before the folder name. A "+" sign indicates that the folder is closed.

Local Messages (Root)

Message 1 *(Root message)*
Message 2 *(Root message)*
–Folder A *(Folder A is open)*
Message 4 *(Folder A message)*
Message 5 *(Folder A message)*
–Folder B *(Folder B is open and is a subfolder of Folder A)*
Message 7 *(Folder B message)*
Message 8 *(Folder B message)*
Message 9 *(Folder B message)*
–Folder C *(Folder C is open and is a subfolder of Folder B)*
Message 11 *(Folder C message)*
Message 12 *(Folder C message)*
Message 13 *(Folder C message)*
Message 14 *(Folder A message)*
Message 15 *(Root message)*
Message 16 *(Root message)*
+Folder D *(Folder D is closed)*
Message 29 *(Root message)*

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4

Tutorial

In this chapter....

— EZText Enhanced Panel Setup
— Installing EZText Enhanced Programming Software
— Installation Screens
— Tutorial
    Plan the Project using Application Worksheets
    Create a Project with EZText Enhanced
    Configure a PLC

EZText Enhanced Panel Setup

SETUP Mode

In order to download the program to the EZText Enhanced Panel using the EZText Enhanced Programming Software, you must be in the Setup Mode. Setup Mode is also where you will **adjust the display contrast** of the EZText Enhanced Panel.

The EZText Enhanced Panel will start up in the RUN Mode. To access the SETUP Mode, follow these steps:

1. Press the **UP Arrow** Pushbutton and hold while simultaneously pressing the **DOWN Arrow** Pushbutton to enter the SETUP Mode.

2. At any time you may press the Escape (**esc**) button to go back to RUN Mode. You will be taken back to the start of the Local Message menu (cursor is placed at root level when you return from setup).

Adjust Display Contrast

You may only adjust the Display Contrast when in Setup Mode. To adjust the display contrast use the UP and DOWN arrows to increase or decrease the contrast.

Internal Software and Hardware Revisions

While in **SETUP** Mode the Panel Hardware Revision, Driver Revision, Boot Revision, and Exec (Firmware) Revision numbers will display on the panel.

Preparing for Configuration

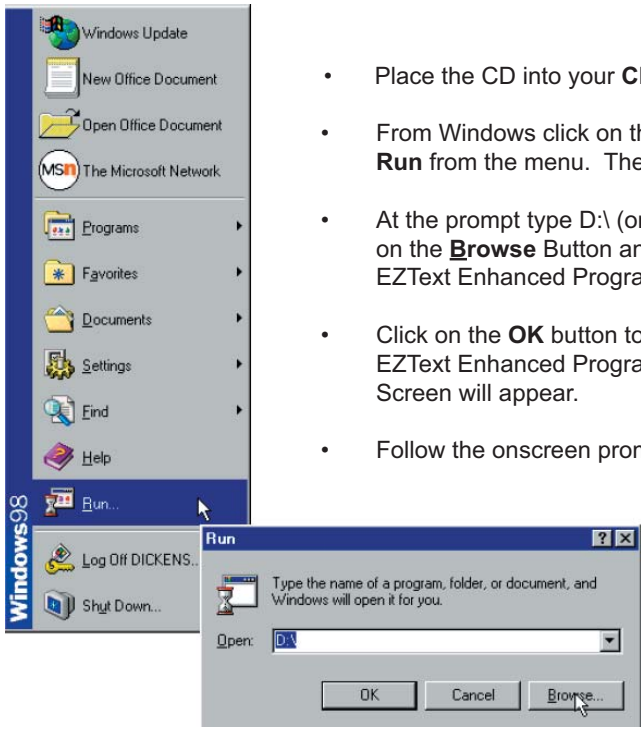
If you prepare and plan ahead of time, your use of the EZText Enhanced Programming software will be successful. Below are a few important steps to take to prepare to program your application.

- Prepare your personal computer and ensure proper installation of the EZText Enhanced Programming Software
- Know your operator interface requirements. Determine the type of EZText Enhanced and the number of EZText Enhanced Panels required by your application
- Know your PLC type and available resources, such as, programming tools, CPU capabilities, user memory, etc.
- Verify type of communications port, as well as protocol used. Determine the CPU link(s) available for connecting an EZText Enhanced Panel
  (RS-232/RS-422, baud rate, parity, stop bits.)

- Determine how the pushbuttons, LEDs, PLC Messages, and Local Messages will be assigned in your panels with respect to your machine or process.
- To prepare your application, use the application worksheets provided in appendix A of this manual. The example worksheets will help you understand how the EZText Enhanced program is configured. Blank worksheets can be used in planning, implementing, and using your EZText Enhanced Panels.

Installing EZText Enhanced Programming Software

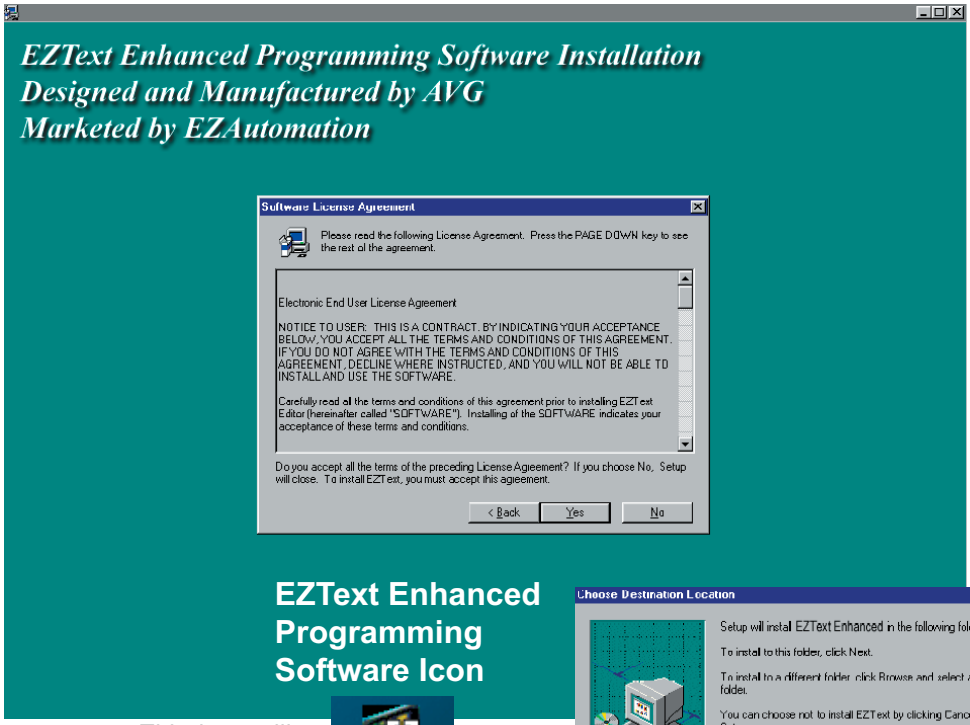
EZText Enhanced Panels are configured with software running on an IBM or compatible personal computer. This software is available through EZAutomation, part number EZ-TEXTEDIT-E. The software is used to download your configuration before connecting the panel and communicating with a PLC. Help Topics are provided to help you configure your panel. You design and configure your EZText Enhanced program off-line and save it to disk. The program may then be transferred to the EZText Enhanced Panel. To install EZText Enhanced Programming Software, perform the following steps:



- Place the CD into your **CD ROM Drive.**

- From Windows click on the **Start** Button, and then click on **Run** from the menu. The **Run** dialog box will pop up.
- At the prompt type D:\ (or your CD Drive)\setup.exe or click on the **Browse** Button and find the **Setup.exe** file for EZText Enhanced Programming Software.
- Click on the **OK** button to begin the installation. The EZText Enhanced Programming Software Installation Screen will appear.
- Follow the onscreen prompts to load the software.

Installation Screens



This icon will appear on your desktop after installation.

This is the final installation screen. Here you select the destination folder where your software program will be installed. The default destination location is C:\ Program Files\EZText Enhanced. If you wish to select another destination, click on the Browse button.

To complete the installation, click on Next> button. That's all there is to it! The EZText Enhanced Icon shown above will appear on your desktop. Simply click on it to open the Programming Software!

Tutorial — Plan the Project using Application Worksheets

The following is a project tutorial. It will take you through the process of creating a new project, configuring buttons, creating messages, and transferring a project to the EZText Enhanced Panel. This should help familiarize you with the EZText Enhanced Programming Software.

Let's start by filling out the application worksheet found in Appendix A. For tutorial purposes, we have already filled in the information. For your project, make copies of the forms in Appendix A. Follow steps 1 through 4 as shown below to fill out the application worksheet for the EZText Enhanced Demo Project.

EZText Enhanced Application Worksheet

EZText Enhanced Application Worksheet

1 Fill in the Project and PLC information.

PROJECT NAME: EZText Demo Project

PANEL TYPE: EZ-220

PLC CONFIGURATION:

PLC MANUFACTURER: DirectLogic
PLC Model: 250
PLC Protocol: K-Sequence
PLC Address: 1
PLC Timeout: 40 secs.

Baud Rate: 9600
Parity: Odd
Data Bits: —
Stop Bits: —
Checksum: —

2 Assign a PLC Word (V40600) to the buttons and to the Panel Acknowledge (if using Panel Set/ PLC Release for Button Action). See next page.

BUTTONS/LEDS

BUTTON ACTION/PANEL ACKNOWLEDGE (BIT WRITE) PLC WORD V40600

Button Action:

	(PLC Address)	Mom.	Alt.	Pnl Set/ PLC Rel *
F1	C0	☐	☑	☐
F2	C1	☑	☐	☐
F3	C2	☑	☐	☐
F4	C3	☐	☐	☑
F5	C4	☐	☑	☐

*** Panel Acknowledge of PLC Release:**

	(PLC Address)
ACK F1	not used
ACK F2	not used
ACK F3	not used
ACK F4	C13
ACK F5	not used

3 Assign a PLC Word (V40601) to the LED Control (if using By PLC) and PLC Button Release (if using Panel Set & PLC Release Button Action). See next page.

LED CONTROL/PLC BUTTON RELEASE (BIT READ) PLC WORD V40601

LED Control:

	(PLC Address)	By Button	By Button & Flash	PLC **
LED1	not used	☑	☐	☐
LED2	C21	☐	☐	☑
LED3	not used	☐	☐	☐
LED4	not used	☐	☐	☐
LED5	not used	☐	☐	☐

*** PLC Button Release:**

	(PLC Address)
REL F1	not used
REL F2	not used
REL F3	not used
REL F4	C33
REL F5	not used

4 Assign a PLC Word for each PLC Message Line.

PLC Messages (PLC Words)

Line 1 V3000
Line 2 V3001
Line 3 not used (EZ-420 only)
Line 4 not used (EZ-420 only)

* *Panel Acknowledge and PLC Button Release are only used when using the Panel Set & PLC Release Button Action.*

** *LED Control by PLC is the only LED function that uses a PLC Address.*

This is a copy of page 30 from Chapter 3, Learning the Features. Shown here are the bit addresses for the Button PLC Word (V40600) and LED PLC Word (V40601) in this tutorial.

Please note that any unused bit address SHOULD NOT BE USED in your PLC program. The EZText Enhanced Panel will control the unused bits.

Pushbuttons

Pushbuttons use one 16-bit register. All bit designations are in octal (0–7 and 10–17), used by DirectLogic PLCs. Use bits 0 to 15 for PLCs using decimal numbering.

BUTTONS (BIT WRITE) PLC WORD — (FROM PANEL)

V40600

C17	C16	C15	C14	C13	C12	C11	C10	C7	C6	C5	C4	C3	C2	C1	C0
17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
NA	NA	NA	ACK F5	ACK F4	ACK F3	ACK F2	ACK F1	▼	▲	ENT	F5	F4	F3	F2	F1

F1–F5 = Function Pushbuttons 1–5
ENT = Enter
▲ ▼ = Arrow UP/DOWN
ACK F1–F5 = Panel acknowledge of PLC button release
NA = not used (Do not use for other PLC program addresses)

Bits 0–7 are set when pressing the corresponding button on the panel.

Bits 10–14 are set when the **Panel Set and PLC Release** Option is selected for the corresponding Function Pushbutton and the Release Bit for that button is set by the PLC in the LED (BIT READ) PLC WORD.

LEDs

LEDs use one 16-bit register. All bit designations are in octal (0–7 and 10–17), used by DirectLogic PLCs. Use bits 0 to 15 for PLCs using decimal numbering.

LED (BIT READ) PLC WORD — (TO PANEL)

V40601

C37	C36	C35	C34	C33	C32	C31	C30	C27	C26	C25	C24	C23	C22	C21	C20
17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
NA	NA	NA	REL F5	REL F4	REL F3	REL F2	REL F1	NA	NA	NA	LED5	LED4	LED3	LED2	LED1

LED1–LED5 = Only used when **By PLC** has been chosen.
REL F1–REL F5 = Used by PLC to release a button that is set by the panel.
NA = not used (Do not use for other PLC program addresses)

For the next part of our project planning, we'll create four Local Messages using the Local Message Worksheet. These messages will be configured later in our EZText Demo Project using the EZText Enhanced Programming Software.

EZTEXT PANEL APPLICATION WORKSHEET

LOCAL MESSAGES:

1 Add a Folder at Level 1

2 Add a Message under the Folder at Level 2

3 Add another Message at Level 2. This Message is a READ Only with one data point DATA1).

4 Add another Message at Level 2. This Message is a READ/WRITE for data entry with one data point (DATA1) with a min. and max. value range.

1
☑ Folder ☐ Message
Level: (1) 2 3 4
Process Control
Folder = 19 characters, **Message** = 20 characters
DATA 1 _____ ☐ Read Only
☐ BCD ☐ Binary ☐ Read/Write
☐ PLC Decimal _____ Min _____ Max _____
DATA 2 _____ DATA 3 _____
☐ BCD ☐ Binary ☐ BCD ☐ Binary

2
☐ Folder ☑ Message
Level: 1 (2) 3 4
Press F1 to start YO
Folder = 19 characters, **Message** = 20 characters
DATA 1 _____ ☐ Read Only
☐ BCD ☐ Binary ☐ Read/Write
☐ PLC Decimal _____ Min _____ Max _____
DATA 2 _____ DATA 3 _____
☐ BCD ☐ Binary ☐ BCD ☐ Binary

3
☐ Folder ☑ Message
Level: 1 (2) 3 4
Zone 1 Temp = 111.1
Folder = 19 characters, **Message** = 20 characters
DATA 1 V2010 ☑ Read Only
☑ BCD ☐ Binary ☐ Read/Write
☐ PLC Decimal _____ Min _____ Max _____
DATA 2 _____ DATA 3 _____
☐ BCD ☐ Binary ☐ BCD ☐ Binary

4
☐ Folder ☑ Message
Level: 1 (2) 3 4
Load Part # 1111
Folder = 19 characters, **Message** = 20 characters
DATA 1 V2011 ☐ Read Only
☐ BCD ☐ Binary ☑ Read/Write
☐ PLC Decimal _____ Min 1200 Max 1999
DATA 2 _____ DATA 3 _____
☐ BCD ☐ Binary ☐ BCD ☐ Binary

The last part of our project planning is creating three PLC Messages using the PLC Message Worksheet. These messages will be configured later in our EZText Demo Project using the EZText Enhanced Programming Software.

1

EZTEXT PANEL APPLICATION WORKSHEET

1 Add Message No. 1. When F3 button on panel is pressed, this message will be displayed.

PLC MESSAGES:

Message No. 1 F3 Button message

20 characters

DATA 1 _____ ❑ Read Only

❑ BCD ❑ Binary ❑ Read/Write

❑ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

❑ BCD ❑ Binary ❑ BCD ❑ Binary

2

2 Add Message No. 2. This message will be displayed to let the operator know that the PLC has turned off F4 button on the panel.

Message No. 2 PLC Release Bit Ackn

20 characters

DATA 1 _____ ❑ Read Only

❑ BCD ❑ Binary ❑ Read/Write

❑ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

❑ BCD ❑ Binary ❑ BCD ❑ Binary

3

3 Add Message No. 3. This message will be displayed when either of the other messages are displayed, to let the operator know how to return to Local Messages.

Message No. 3 Esc for Local Msgs

20 characters

DATA 1 _____ ❑ Read Only

❑ BCD ❑ Binary ❑ Read/Write

❑ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

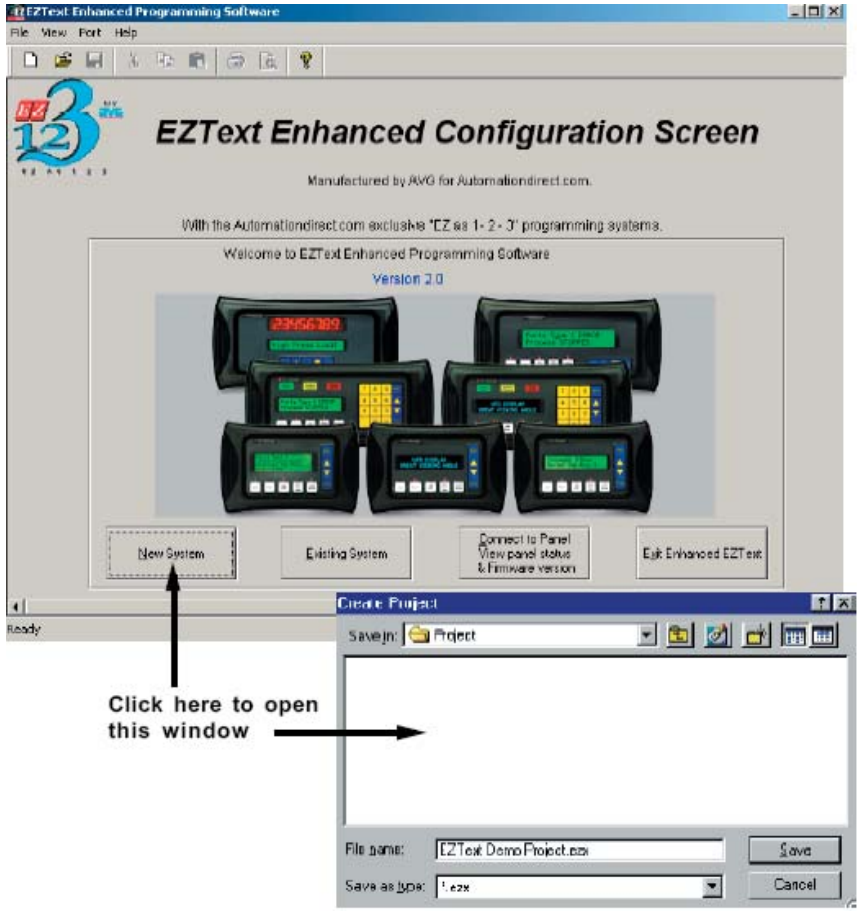
❑ BCD ❑ Binary ❑ BCD ❑ Binary

Tutorial — Create the Project using EZText Enhanced Programming Software

Let's assume you have the programming software installed on your PC (if you don't, go back to page 45 and install now). Connect the EZText Enhanced Panel to your PC using the P/N EZTEXT-PGMCBL cable. Apply 24 VDC to the panel power connector.

1. From the **Welcome** screen, click on the **New System** button.

2. The **Create Project** window will appear. Type in "EZText Demo Project" in the **File name** field. Click on **Save**. (If you don't want your project saved to the default "Project" folder, navigate to the directory and/or folder where you want it to reside.)

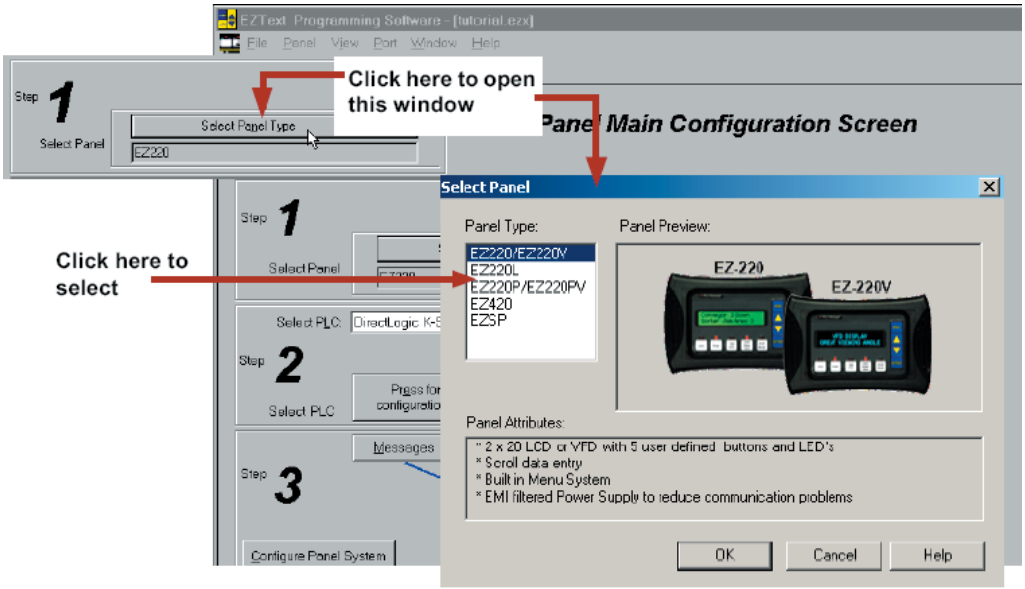


3. In **Step 1, Select Panel**, you will start your project by selecting the panel type you are using.

   a. From the **Main Configuration** Screen, click on the **Select Panel Type** button.

   b. The **Select Panel** dialog box will open. Under **Panel Type**, click on the panel type you are using to highlight it. A picture of the panel will appear under **Panel Preview**, and key features of the panel are displayed under **Panel Attributes**.

   c. Click on the **OK** button to select and close the dialog box.



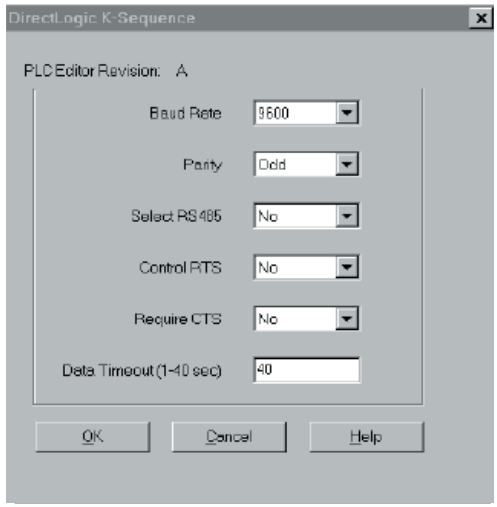
4. In **Step 2, Select PLC,** you will choose the type PLC you are using.

   a. Click on the DOWN arrow next to the **Select PLC** field to view the drop down menu of available PLCs. Click on the PLC Type to select.

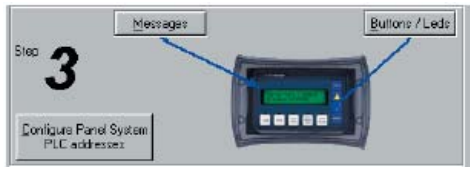
b. Click on the **Press for communication configuration for Selected PLC** button.

c. The **PLC Communications Attributes** window will appear for the PLC you have selected. (In this case, DirectLogic K-Sequence.) Set the attributes to match those in the screen capture, below. Click on the **OK** button.

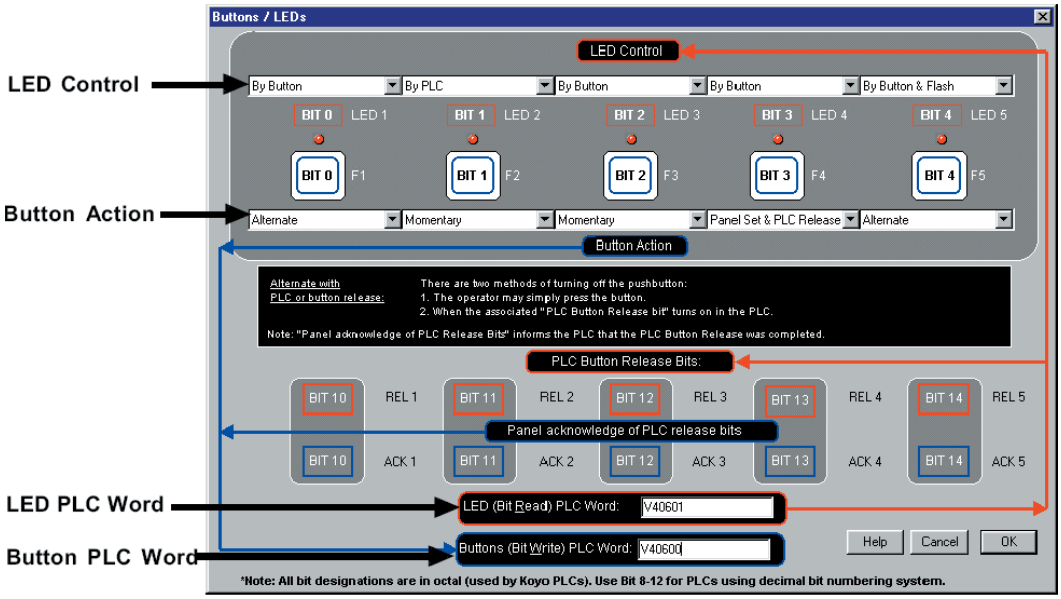
Please Note:
The PLC communication attributes must match the COM port settings for your selected PLC.



5. In **Step 3** you will configure the **Buttons/LEDs**, **Messages** and **Panel System PLC Addresses**.



6. Click on the **Buttons/LEDS** button. The following screen will appear.



a. Under **LED Control**, click on the down arrow to view control choices. Select **By Button** for **LED 1, LED 3** and **LED 4**. Select **By PLC** for **LED 2,** and **By Button & Flash** for **LED 5** (selections should be as shown in the screen capture above).

b. Under Button Action, click on the down arrow to view control choices. Select **Alternate** for **F1** and **F5**, **Momentary** for **F2** and **F3**, and **Panel Set & PLC Release** for **F4**.

c. Assign a PLC Word for the LEDs and the Buttons. These PLC Words should be a BIT Register.

d. Click on **OK** to accept and exit the screen.

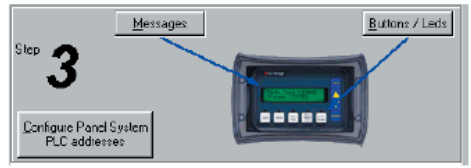
*7. Click on the **Annunciator** button. The screen shown to the right will appear.

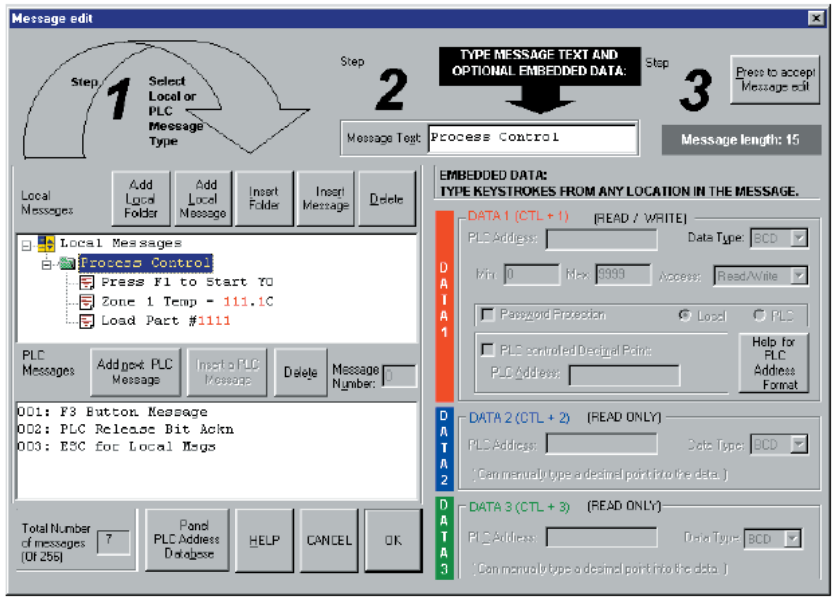
a. Assign a **PLC Read Word (Bits)**. The PLC Word should be a BIT register.

b. Click on **OK** to accept and exit the screen.

**This step is only applicable to models EZ-220P & EZ-220PV.*

8. Next, we'll show you how to configure **Local Messages**. Click on the Messages button for Step 3 on the Main Configuration Screen. The following screen will appear.



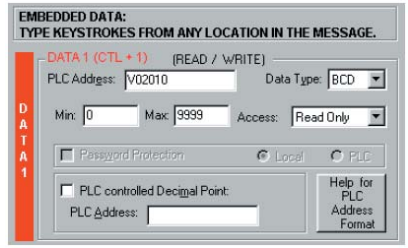


a. Click on the **Add Local Folder** button (**Step 1**). In the **Message Text** field (**Step** 2), type in **"Process Control**." Click on the **Press to accept Message edit** button (**Step 3**).

b. Click on the **Process Control** Folder to select it, and then click on the **Add Local Message** button.

c. Enter **"Press F1 to Start Y0"** in the **Message Text** field and then click on the **Press to accept Message edit** button.

d. Next we'll configure a dynamic message. Click on the Process Control Folder, then click on **Add Local Message** and type in **"Zone 1 Temp ="**. After Zone 1 Temp =, enter a space and press F5 (or Ctrl +1) three times, type in a decimal point, then press F5



again. Type in a "**C**" immediately after the "**111.1**". (DATA 1 will appear as four, red ones in the message.)

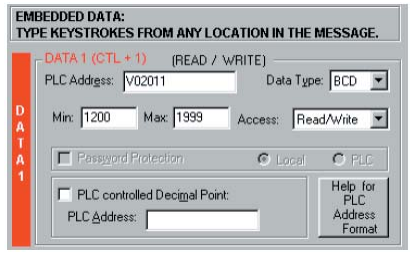
e. Under the **DATA 1** section of the screen shown above, type in **"V2010"** in the **PLC Address** field. The **Data Type** should be set to **BCD**, and **Access** should be **Read Only**.

f. Click on the **Press to accept Message edit** button.

g. The last **Local Message** to be configured will be an **Interactive** message (**DATA 1**).

h. Click on the **Process Control** Folder, then click on **Add Local Message**.

i. In the **Message Text** field, type in **"Load Part #"**, leave a space, and then press F5, or Ctrl + 1, four times. (**DATA 1** will appear in the **Message Text** field as four, red ones.)



j. The **DATA 1** configuration area is now available (no longer grayed out.) Next to **PLC Address**, type in **"V2011"**. **Data Type** should be **BCD**. **Access** is **Read/Write**. Set the **Min.** value to **"1200"** and the **Max.** value to **"1999"** (settings are shown in the screen capture, above.) This will limit what value can be entered by the operator.

k. Click on the **Press to accept Message edit** button to save it.

8. To create PLC Messages 001, 002, and 003 as shown in the screen capture above, perform the following steps:

   a. Click on the **Add next PLC Message** button.

   b. Type in the **Message Text** field, **"F3 Button Message**".

   c. Click on the **Press to accept Message edit** button to save it.

   d. Click on the **Add next PLC Message** button.

   e. Type in the **Message Text** field, **"PLC Release Bit Ackn**".

   f. Click on the **Press to accept Message edit** button to save it.

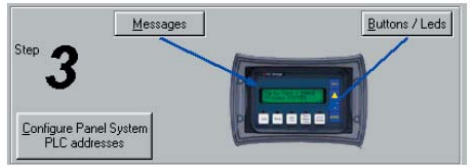
   g. Click on the **Add next PLC Message** button.

   h. Type in the **Message Text** field, **"ESC for Local Msgs**".

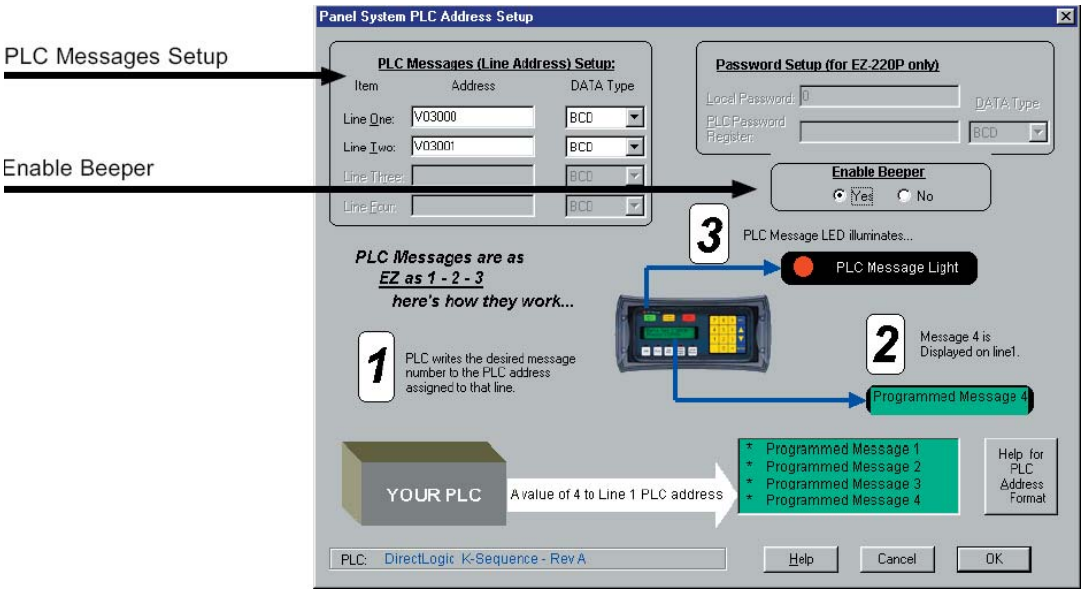
   i. Click on the **Press to accept Message edit** button to save it.

9. You are now finished configuring the messages for this tutorial, click on **OK** to exit the **Message Edit** screen.

10. The final part of **Step 3** is to configure the panel system PLC addresses. To configure PLC addresses, click on the **Configure Panel System PLC addresses** button.



11. The **Panel System PLC Address Setup** screen will appear. Enter settings as follows:



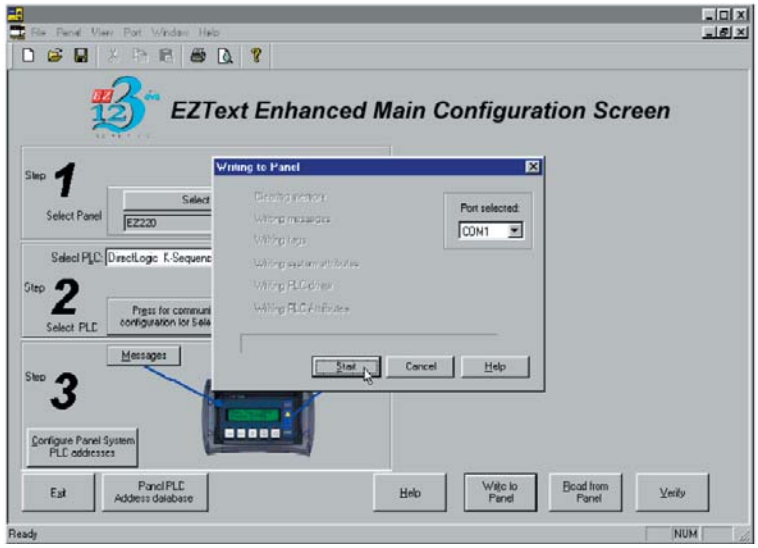
a. Type in "**V3000"** in the **Line One** field. Select **BCD** as the **DATA Type**. Type in **"V3001"** in the **Line Two** field. Select **BCD** as the **DATA Type**.

b. The panel beeper is defaulted to **Yes**. If you do not want to hear the beeper each time a button is pressed, select **No** under **Enable Beeper**.

c. Click on the **OK** button to save and exit.

12. You are now ready to write the project to the EZText Enhanced Panel.

13. Click on the **Write to Panel** button on the **Main Configuration Screen**.

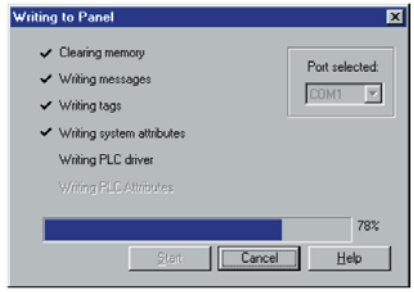


14. The **Writing to Panel** screen will appear. Click on the down arrow under **Port selected** and select the COM port on your PC that is connected to the EZText Enhanced Panel (COM1, COM2, COM3 or COM4).

15. Before preceding, ensure that the panel you are about to write to is in the **Setup Mode**. To enter the **Setup Mode**, press the UP and DOWN arrows on the EZText Enhanced Panel simultaneously. The panel display will read **SETUP MODE** on the first line.

16. Click on the **Start** button on the **Writing to Panel** screen, as shown above.

17. The progress of the **Write to Panel** process will be shown by a check mark placed in front of the items as the project is written to the panel. The status bar along the bottom portion of the screen will also show the progress.



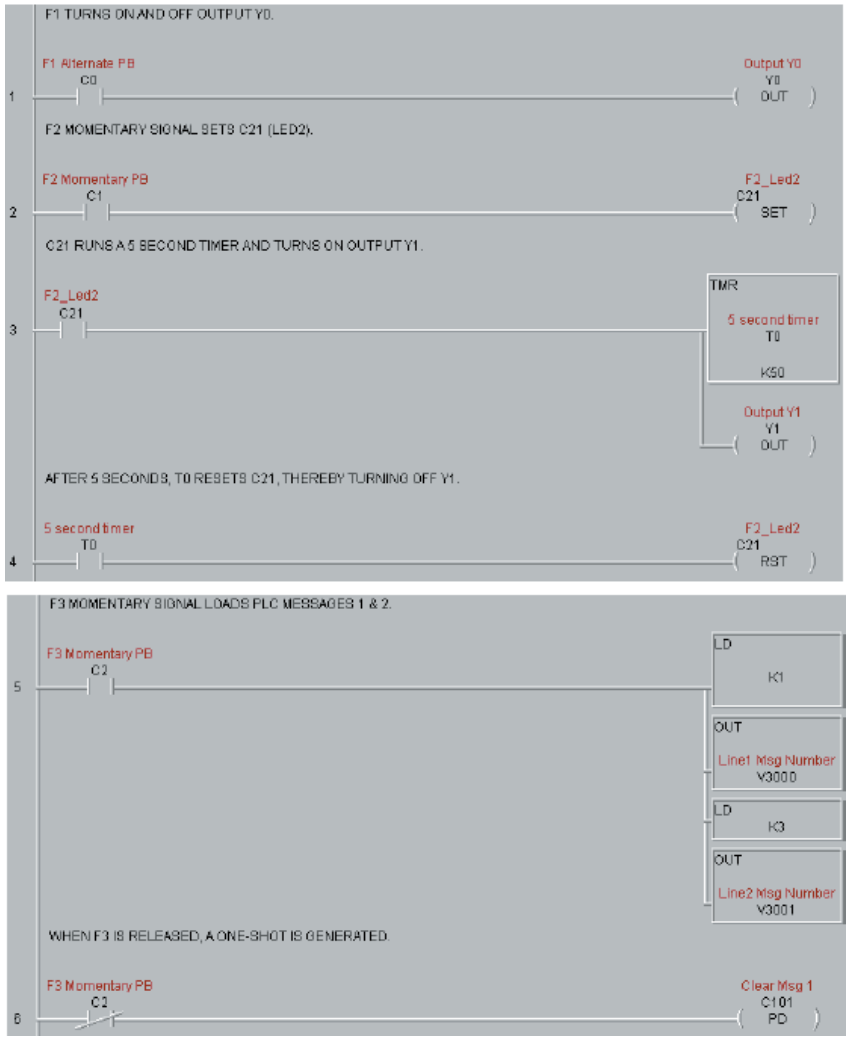
18. Now that the panel is configured, let's connect our PLC programming software to the PLC and write the ladder program.

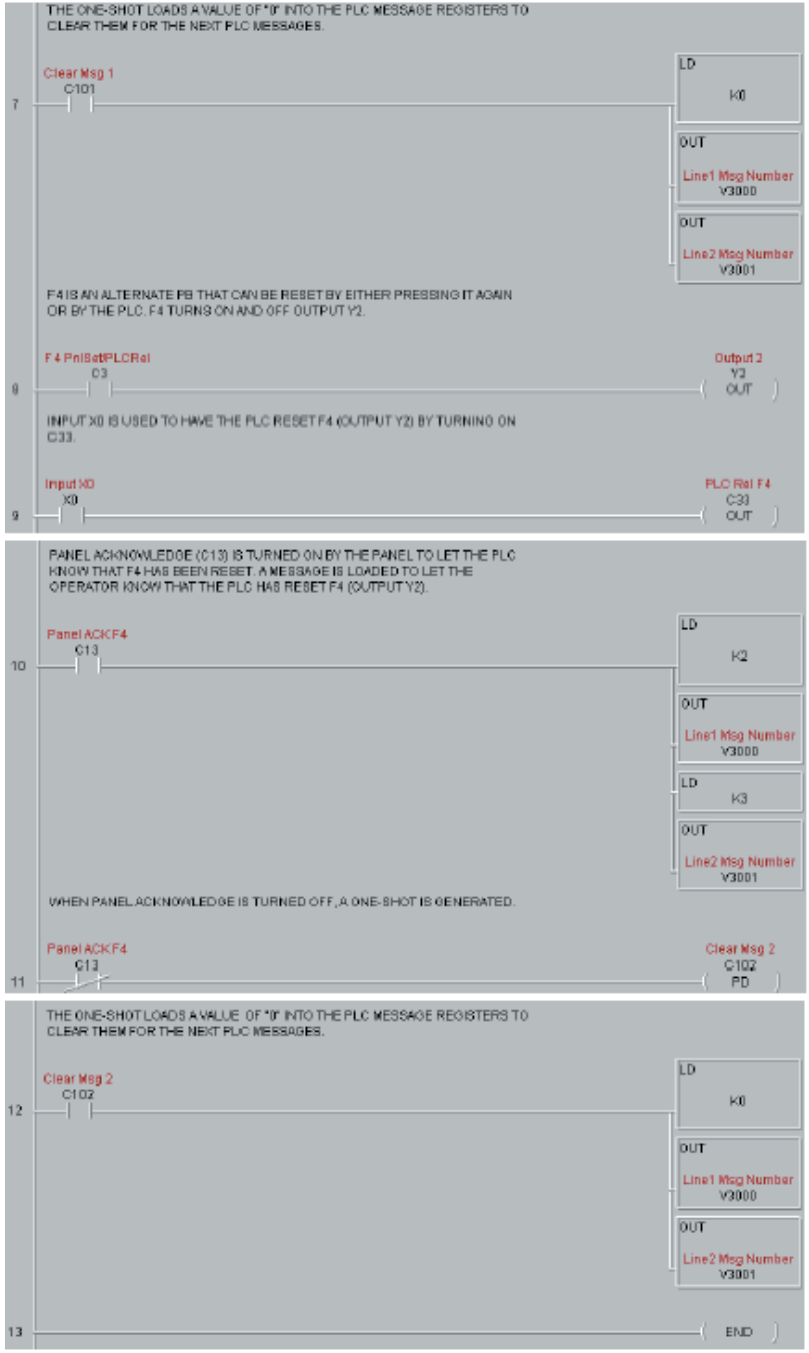
Tutorial — Configure a PLC

For the purposes of this tutorial, we will be using a DirectLogic® DL05 PLC. To configure the PLC we are using DirectSOFT® Programming Software. The purpose of this part of the tutorial is to show you how to configure your PLC to communicate with an EZText Enhanced Panel.

1. Connect to the PLC with DirectSOFT.

2. Enter the following ladder logic.




THE ONE-SHOT LOADS A VALUE OF "0" INTO THE PLC MESSAGE REGISTERS TO CLEAR THEM FOR THE NEXT PLC MESSAGES.
Clear Msg 1
C101
7
LD
K0
OUT
Line1 Msg Number
V3000
OUT
Line2 Msg Number
V3001
F4 IS AN ALTERNATE PB THAT CAN BE RESET BY EITHER PRESSING IT AGAIN OR BY THE PLC. F4 TURNS ON AND OFF OUTPUT Y2.
F4 PnlSet/PLCRst
C3
8
Output 2
Y2
OUT
INPUT X0 IS USED TO HAVE THE PLC RESET F4 (OUTPUT Y2) BY TURNING ON C33.
Input X0
X0
9
PLC Rst F4
C33
OUT
PANEL ACKNOWLEDGE (C13) IS TURNED ON BY THE PANEL TO LET THE PLC KNOW THAT F4 HAS BEEN RESET. A MESSAGE IS LOADED TO LET THE OPERATOR KNOW THAT THE PLC HAS RESET F4 (OUTPUT Y2).
Panel ACK F4
C13
10
LD
K2
OUT
Line1 Msg Number
V3000
LD
K3
OUT
Line2 Msg Number
V3001
WHEN PANEL ACKNOWLEDGE IS TURNED OFF, A ONE-SHOT IS GENERATED.
Panel ACK F4
C13
11
Clear Msg 2
C102
PD
THE ONE-SHOT LOADS A VALUE OF "0" INTO THE PLC MESSAGE REGISTERS TO CLEAR THEM FOR THE NEXT PLC MESSAGES.
Clear Msg 2
C102
12
LD
K0
OUT
Line1 Msg Number
V3000
OUT
Line2 Msg Number
V3001
13
END

3. Save the Program to the PLC and to disk (EZTextDemoProject).

4. Place the PLC in Run Mode.

The PLC is now configured and running. Now, to test our project, connect the Panel to PLC communications cable (P/N EZP-2CBL), to the panel port and the PLC port.

1. Press the **esc** (escape) button on the EZText Enhanced Panel. The Local Message (folder), "**+ Process Control**", will be displayed on the first line.

2. Press the **enter** button to open the folder. Level 2 Local Message "**Press F1 to Start Y0**" will be displayed. Use the ⌧(arrow) buttons to scroll through the messages. Press the **esc** button to go back to the Folder Level 1.

3. Press **F1** to turn ON or OFF **Y0**.

4. Press **F2** to turn ON **Y1** for 5 seconds.

5. Press **F3** to display **PLC Message No. 1**.

6. Press **F4** to turn ON **Y2**. Either press **F4** again to turn it OFF, or turn ON **X0** in the PLC. If the PLC turns OFF **F4**, a message will be displayed.

7. Press **F5** to see an alternate button with flashing LED.

CONGRATULATIONS! You have now successfully configured an EZText Enhanced Panel!

Configuration

5

In this chapter....

—Configure New System
    Step 1, Select Panel
    Step 2, Select PLC
    Step 3, Panel System PLC Address Setup
    Configure Local and PLC Messages
—Configure Existing System
—Connect to Panel, View Panel Status and Firmware Version
—Upgrade Firmware

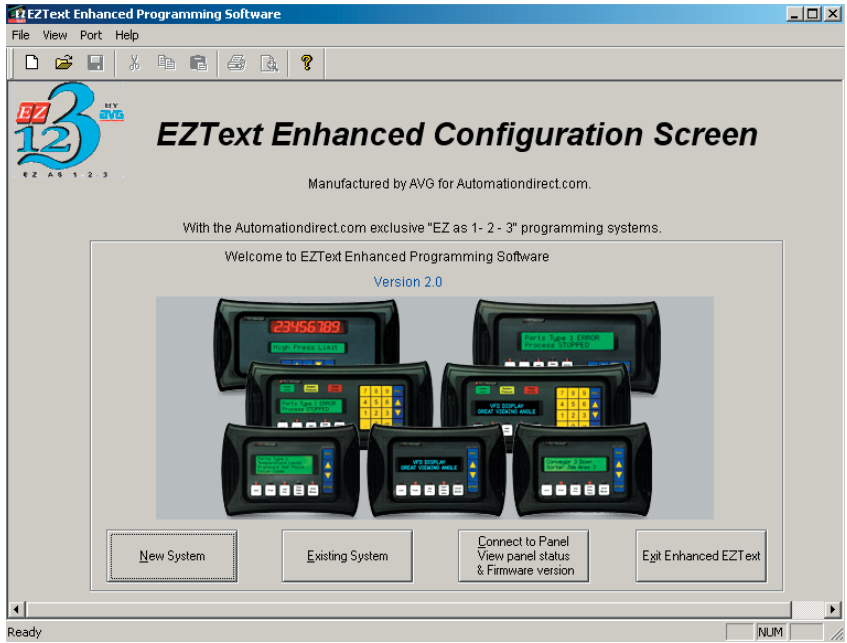
This section will take you through the steps necessary to configure a new system, edit an existing system, view panel status, and upgrade the EZText Enhanced Panel firmware.

We recommend that you go through the tutorial in Chapter 4, page 43, before configuring your EZText Enhanced Panel.

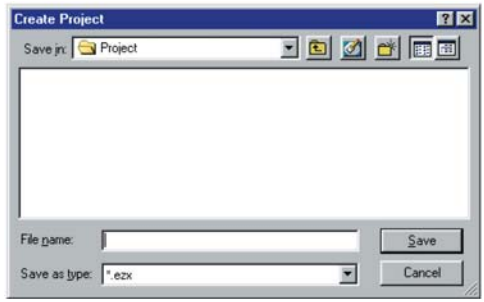
If you don't already have the EZText Enhanced Programming Software installed, go to Chapter 4, Tutorial, page 45.

Configure New System

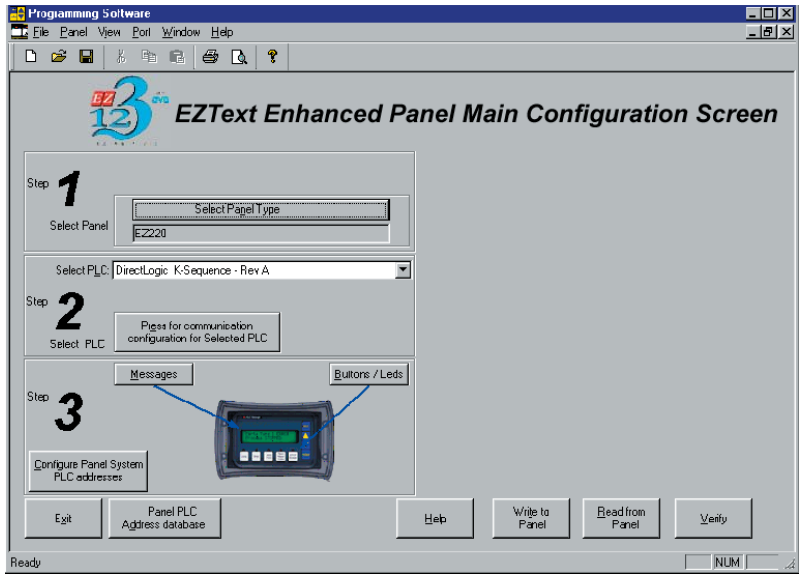
1. Click on the EZText Enhanced Icon to open the EZText Enhanced Programming Software. The following screen will appear.



2. Click on the **New System** button to configure the EZText Enhanced program. The following screen will appear.

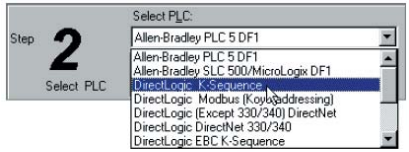


3. Enter a name for the project in the **File name** field. Navigate to the directory and folder where you want to keep the file (or except default location), and click on the **Save** button to save. The following screen will appear.

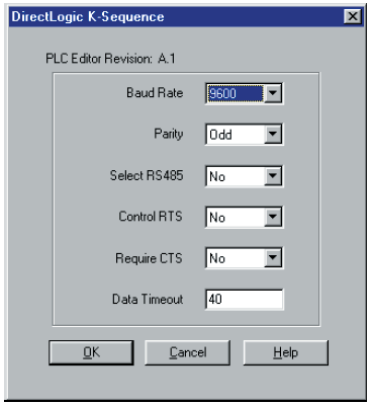


4. For **Step 1**, click on the **Select Panel Type** button. The following screen will appear. Under **Panel Type**, click on the model you are using. A **Panel Preview** and **Panel Attributes** specific to the type of panel you have chosen will appear in this dialog box. Click on **OK** to enter your selection.

5. For **Step 2**, click on the Down Arrow next to the **Select PLC** field. Choose the PLC and Protocol type you are using.



6. Click on **Press for Communication Configuration for Selected PLC** button.

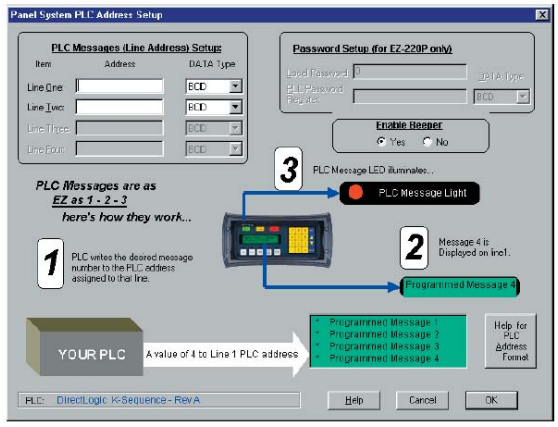


A PLC Attributes dialog box specific to your type PLC will appear. Complete the communications information. After selecting the PLC type, you must define the remaining protocol items, such as baud rate, parity, etc. The following table provides the necessary information for most DirectLogic controllers. When using another type PLC, consult that product's user manual to determine the port communications capabilities.

Table for DirectLogic PLC Attributes

PLC Model		Port/Baud Rates	Parity	Stop Bit
DL105/230/240	Top	9600	Odd	1
	Bottom	(DL240 only) 9600/19.2k	Odd/None	
DL250	Top	9600	Odd/None	1
	Bottom	9600/19.2k		
DL330	DCU only	4800/9600/19.2k	Odd/None	1
DL340	Bottom & Top	4800/9600/19.2k	Odd/None	1
DL350	Top	9600	Odd	1
	Bottom	4800/9600/19.2k	Odd/None	
DL430/440	Top	9600	Odd	1
	Bottom	9600/19.2k	Odd/None	
DL450	DB15	9600	Odd	1
	DB25	9600/19.2k	Odd/None	
	RJ12	9600/19.2k	Odd/None	

During configuration, ensure that your address and communications parameters match the PLC port settings. There will be a selection for PLC timeout. When the panel sends a message to the PLC and does not receive a response or does not understand the response, it will wait the timeout period before sending the message again.

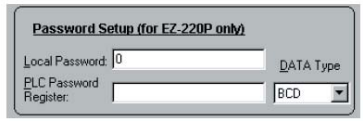


7. For **Step 3**, click on the **Configure Panel System PLC Addresses** button. The **Panel System PLC Address Setup** window will appear.

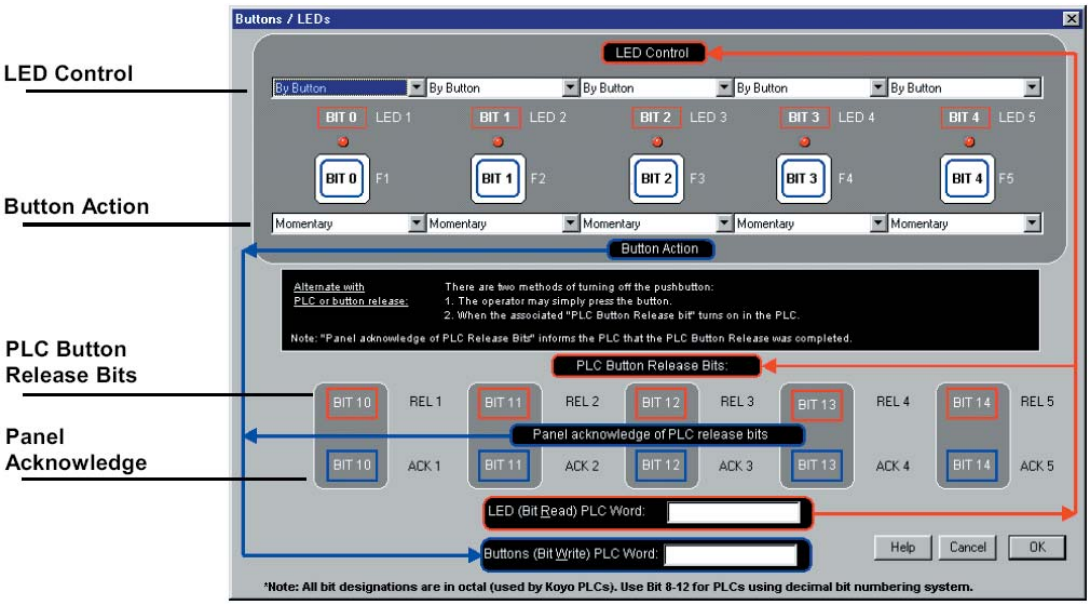
8. Under **PLC Messages (Line Address) Setup**, enter the PLC Addresses for **Line One** and **Line Two** (and Line Three and Line Four if using an EZ-420 Model). Select the **Data Type** for the PLC. Select **Yes** or **No** to **Enable Beeper**. Click **OK**.

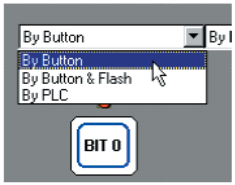
9. Next, click on the **Buttons/ LEDs** button (shown to the right) to configure the **Panel Functions**. The following screen will appear.

10. If you want **Password Protection**, to restrict access to data entry, enter a **Local Password** (up to 5 digits, 0–65535). If you want to store the password in the PLC, enter a register address (**PLC Password Register**) and select the **Data Type** for the PLC. Click **OK** to exit the Setup screen.



**Password Protection is only available in models EZ-220P & 220PV.*





11. First select the **LED Control** for the first button LED, **Bit 0**. You may choose to have the LED controlled **By Button**, **By Button & Flash**, or **By PLC.** Make selections for Bit 0 through Bit 4. The LED function depends on the type of **Button Action** selected.
    - **By Button** means that the LED illuminates when the button is pressed.
    - **By Button & Flash** means that the LED illuminates and flashes when the button is pressed.
    - **By PLC** means that the LED illuminates when triggered by the PLC.

12. Select the **Button Action** for each button Bit 0 through Bit 4 You may choose from **Momentary**, **Alternate**, or **Panel Set and PLC Release**.
    - **Momentary** means that the Button is ON only while the button is being pressed.
    - **Alternate** means that the Button is turned ON when pressed and only turns OFF when the button is pressed again.
    - **Panel Set and PLC Release** means that the Button and LED are ON when the button is pressed and turn OFF when pressed again or when turned off by the PLC.
        - —**PLC Button Release Bits** use Bit 10 through Bit 14 (Octal) or Bit 8 through Bit 12 (Decimal). If the button is ON, the PLC can release the button by setting the corresponding release bit.

— **Panel Acknowledge of PLC Release Bits** use Bit 10 through Bit 14 (Octal) or Bit 8 through Bit 12 (Decimal). The panel turns ON these bits to acknowledge the PLC Release Bits.

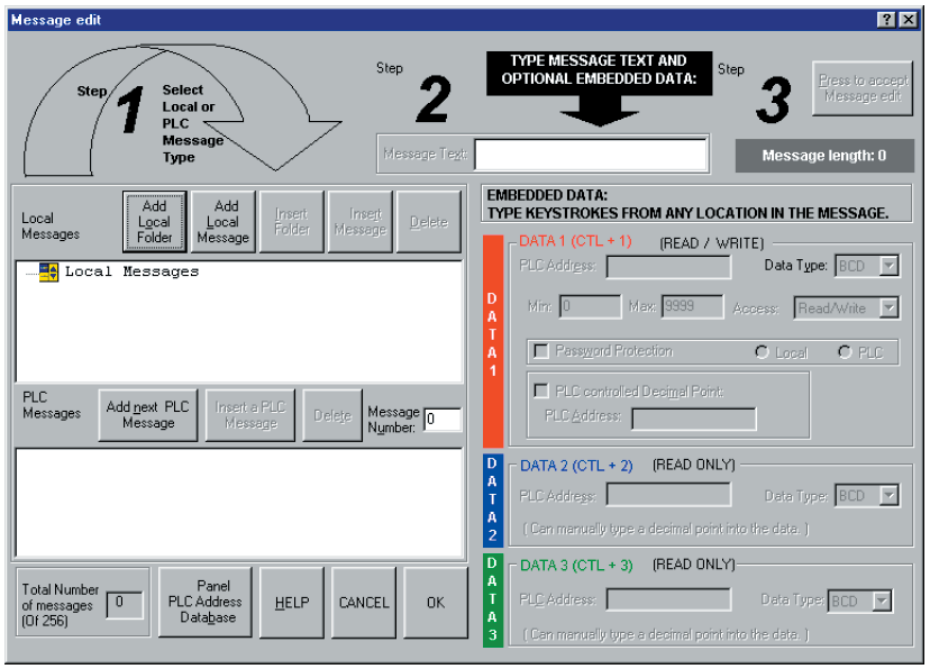
12. Enter a **LED (Bit Read) PLC Word** and a **Buttons (Bit Write) PLC Word** address.

This register controls LEDs and PLC Button Release (Read Only or Read/Write address)

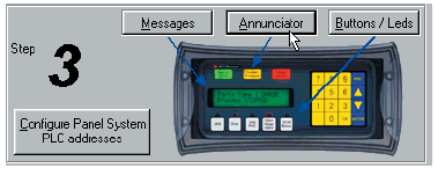
This register controls Buttons and Panel Acknowledge (must be READ/WRITE address)

13. Click on **OK** to save your Button/LED control selections.

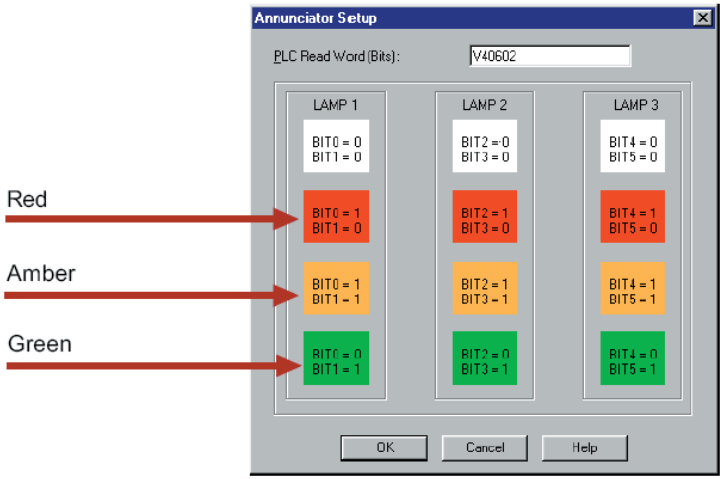
14. Now you are ready to configure **Local** and **PLC Messages**. Click on the **Message** button (as shown to the right). The following screen will appear.



*15. Now you are ready to configure the Annunciator Lamps. Click on the **Annunciator** Button, shown below.



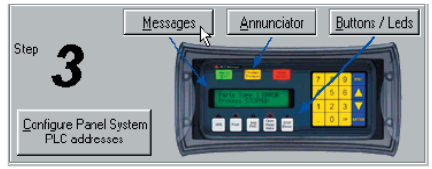
The following screen will appear.



*16. Enter a PLC address in the **PLC Read Word (Bits)** field. When you configure the PLC ladder logic, use the bit assignments as shown in the dialog box above to control the three annunciator lamps. (White represents OFF.)

*17. Click on the **OK** button to save the register address and exit the screen.

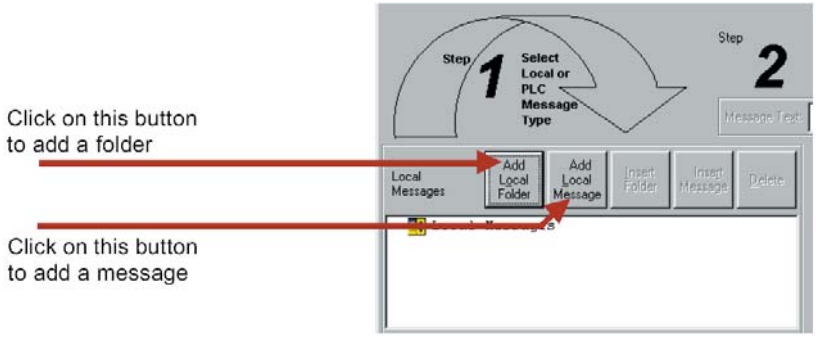
*18. Now you are ready to configure **Local** and **PLC Messages**. Click on the **Message** button (as shown to the right). The screen at the top of the following page will appear.



These features available in models EZ-220P & EZ-220PV only.

19. For **Step 1**, choose to configure a Local or PLC Message. Local Messages are messages stored in the panel in a menu hierarchy and provide information and instructions to the operator. PLC Messages are triggered by a value in a PLC register. The PLC Message LED will illuminate to tell the operator that the PLC has triggered a message. The buttons will not respond for 3 seconds after the PLC Message has been triggered to ensure that the operator has a chance to read the message. See step 16 (next step) to program a **PLC Message**. To program a **Local Message**, perform the following steps.

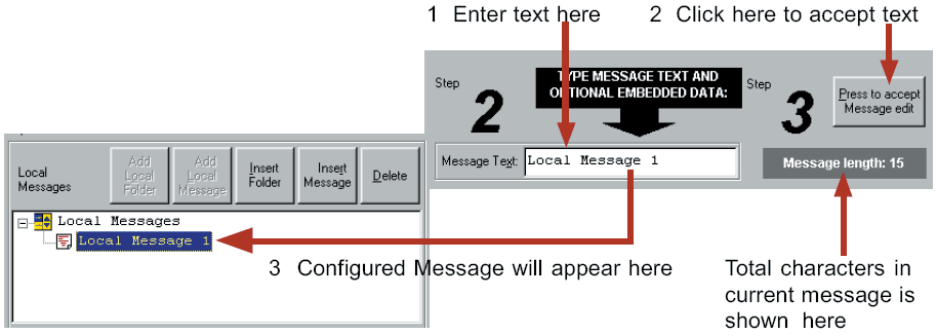
    a. Next to **Local Messages**, click on the **Add Local Folder** button or the **Add Local Message** Button.



NOTE: Folders can have up to 19 characters maximum.

    b. Under **Step 2**, type in up to 20 characters in the **Message Text** field.

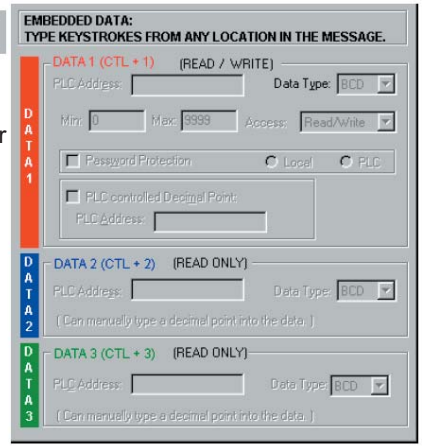
    c. **Step 3**, click on the **Press to Accept Message Edit** button. The message text you have typed in will appear in the Local Message field.



    d. If you want to embed data from a PLC register in a Local Message, place the cursor in the message where you want the

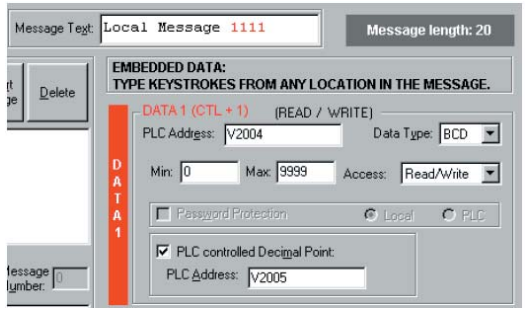
value to appear and press F5 or (CTRL+1) for DATA 1, F6 or (CTRL+2) for DATA 2, or F7 or (CTRL+3) for DATA 3. Each press of the function key will enter one data value digit. You may enter up to 5 characters (depending on the data type).

In the message, the data will be represented by red 1's for DATA 1, blue 2's for DATA 2, and green 3's for DATA 3. (The actual value will display in the message on your EZText Enhanced Panel.)



PLEASE NOTE: DATA 1 is READ/WRITE and allows the option for the operator to change data values in the PLC register using the Control Keys on the EZText Enhanced Panel. **DATA 2** and **DATA 3** are READ ONLY and will display a value from the PLC register. You cannot change the DATA 2 or DATA 3 value from the panel.

e. Now you will need to configure the embedded data . If you have embedded data, you will notice that the DATA 1, DATA 2, or DATA 3 field is now available.



f. You must first enter the **PLC Address** where the value resides. Select the **Data Type** (format) for your PLC Type (either **BCD** or **Binary**).

g. Select the **Access** for the PLC register. Will you want the message to display a register value (READ only)? Do you want the message

to display a register value and allow the operator to change the value with the panel ARROW Keys (READ/WRITE)?

h. If you select **READ/WRITE** Access, you can enter a **Minimum** and **Maximum** Range that the operator can write to the PLC.

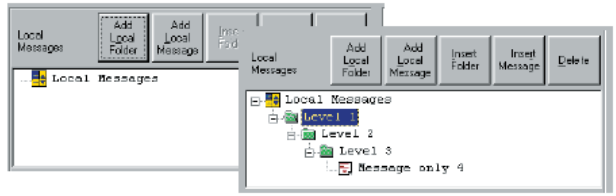
i. You will notice that Password Protection is not available for the EZText Enhanced Panel models covered by this manual. Password Protection is only available in the EZ-220P model, that offers a keypad for numerical data entry.

j. You may configure **DATA 1** to display a decimal point that is controlled by the PLC. The location of the decimal point must be configured in your PLC ladder logic program. Place a check mark in the box next to **PLC Controlled Decimal Point** and then enter the **PLC Address** where the control resides. (This is DATA 1 only — you cannot configure PLC Control for a DATA 2 or DATA 3 embedded value.)

If PLC control for the decimal point is enabled, the program will place a decimal point at the end of the characters representing the data value in the Message Text field — **1111.** in the figure above. Then placing a value of 1–4 (BCD) or 1–5 (Decimal) in the PLC register will place the decimal in the appropriate location.

k. You may manually enter a decimal point in DATA 1, DATA 2 or DATA 3, by placing your cursor in the message where you want it to appear in the value, and then insert the decimal point as shown below.

l. Create Folders to group messages relating to the same topic. The first message or folder you program will appear on the first line of the EZText Enhanced Panel display when it is in Run Mode. (Second programmed message displays on second line, etc., up to four lines, depending on the type of panel you are using.) The Local Message and Folder menu tree can have up to 3 levels as shown in the following example.



m. To add a folder, click on the **Add Local Folder** button.

n. To insert a Message or Folder between already configured messages, you must first have a message or folder highlighted. click on **Insert Folder** or **Insert Message**. The inserted Message or Folder will be placed above the highlighted Message or Folder.

o. To delete a Message or Folder, click on it to highlight it and then click on the **Delete** button.

p. To save your messages and exit the **Message Edit** window, click on the **OK** button at the bottom of the **Message Edit** window. To exit without saving, click on the **Cancel** button.

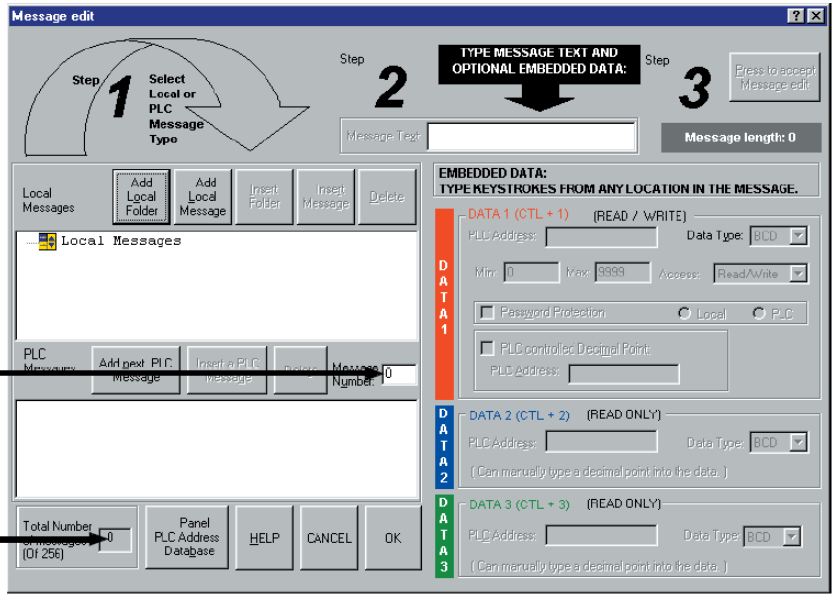
20. **PLC Messages** are triggered by a value in a PLC register. The PLC Message LED will illuminate to show the operator that the PLC has triggered the message. To program a PLC Message, click on the A**dd Next PLC Message** button.

a. Type in text up to 20 characters in the **Message Text** field. The 20 character maximum includes **Data Items**, also, if you choose to enter them. You will see the **Message Length** value change as

you enter characters to let you know how many you have used. The current **Message Number** and **Total Number of Messages (of 256)** programmed are also displayed for your information.

To configure a PLC message out of sequence, click in the message number field and type in the message number

Total Number of Messages you have programmed is displayed here

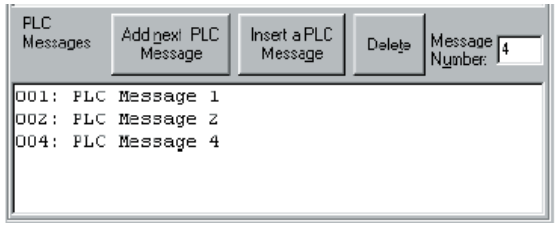


b. If you want to embed data values from a PLC register in the message, press **F5 or (Ctrl+1)** for **DATA 1, F6 or (Ctrl+2)** for **DATA 2,** or **F7 or (Ctrl+3)** for **DATA 3**. Each press of the function key will enter 1 data value character. You may enter up to 5 characters depending on the data type you have selected.

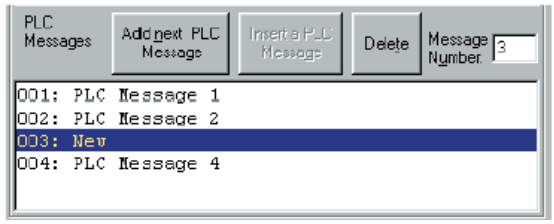
c. You will configure Data 1, Data 2, and Data 3 values the same way as described in a Local Message.

d. If you have configured messages out of sequence and you want to insert a message between messages already programmed, click on **Insert a PLC Message**. Be aware that blank messages count in the Total Messages allowed.

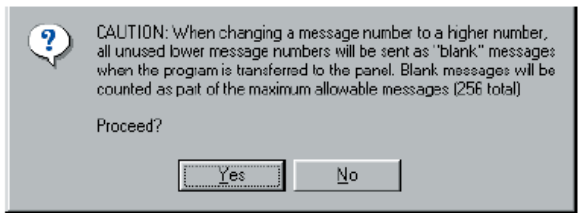
For example:
You have programmed PLC Messages numbered 001, 002 and 004, skipping PLC Message number 003, as shown below.



Click on **004: PLC Message 4** in the message field to highlight it, and then click on the **Insert a PLC Message** button. PLC Message Number 003 will appear above PLC Message Number 004 and you may enter the new message.

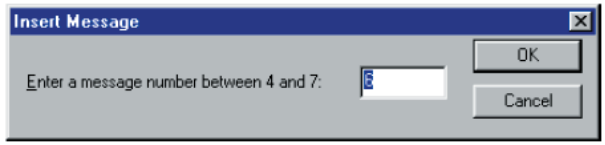


Be aware that when programming messages out of sequence, that the "blank" messages are counted in the Total Messages allowed. The following "CAUTION" message will appear when you enter a message number higher than the next number in sequence.



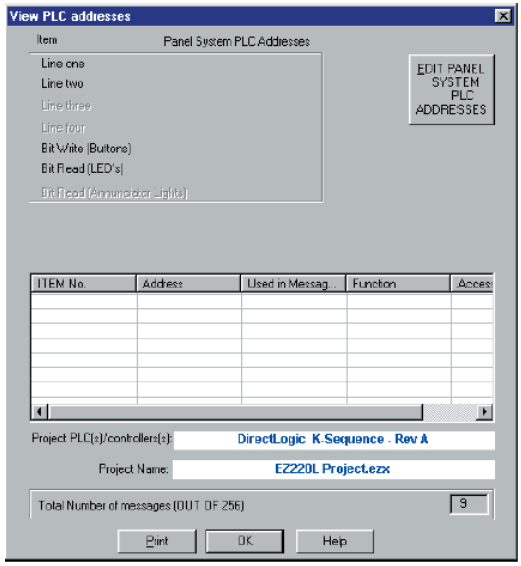
If you have skipped more than one message number (e.g., you have programmed messages 1 through 4, skipped messages 5, and 6, and then programmed 7), and highlight message 7 and click on

Insert a PLC message, the following dialog box will appear asking you to enter the number (e.g., 5 or 6) of the message you want to insert.



e. To delete a message, click on it to highlight and then click on the **Delete** button.

21. To view the PLC Addresses you have programmed click on the **Panel PLC Address Database** button. The following window will open.

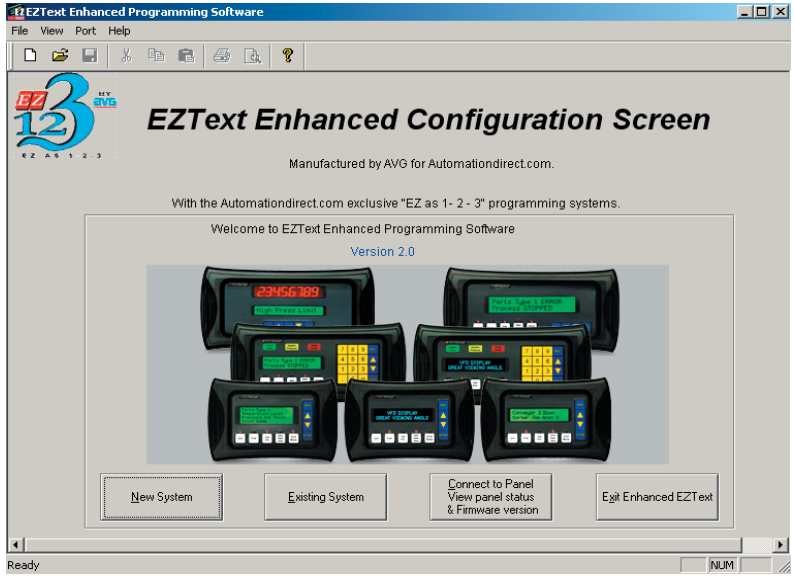


Shown here will be the addresses mapped to the panel display lines (**Line one**, **Line two**, etc.), the **Bit Write (Buttons)**, **Bit Read (LEDs)**, and the PLC Message Data Items. Items grayed out are not available for the EZText Enhanced Panel model you have selected. The **PLC/ controller** you have selected and the **Project Name** are also displayed, along with the **Total Number of messages (OUT OF 256)** programmed. This is for information only—to edit the addresses, click on the **EDIT PANEL SYSTEM PLC ADDRESSES** button.

22. Click on the **Print** button to print the database or the **OK** button to exit.

Configure Existing System

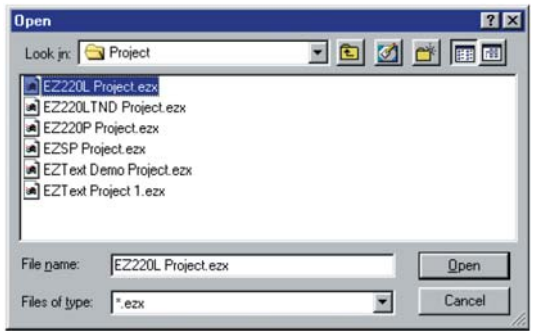
1. Click on the EZText Enhanced Icon to open the EZText Enhanced Programming Software. The following screen will appear.



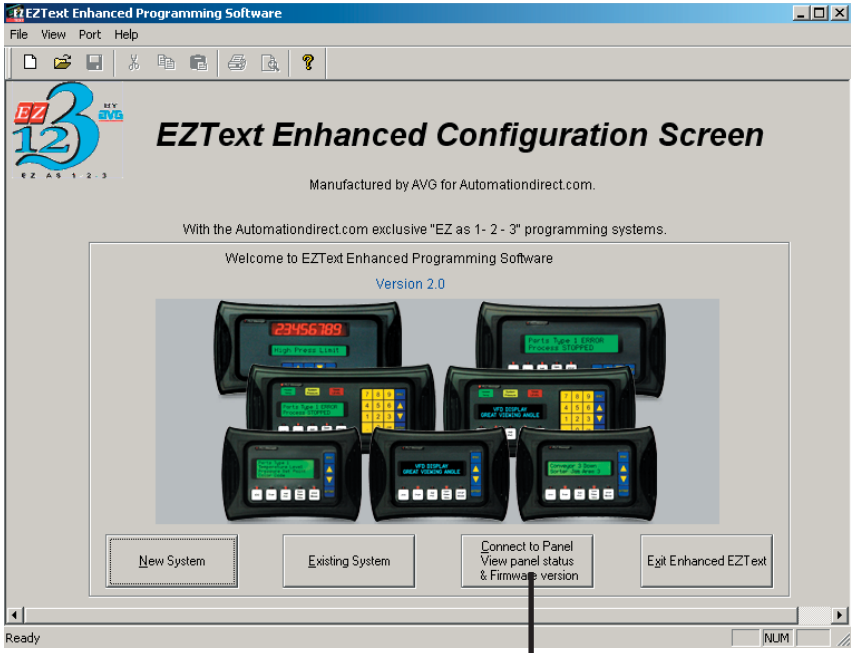
2. Click on the **Existing System** button to edit an EZText Enhanced program. The following screen will appear.

3. Select the project you want to edit from the default program directory or navigate to where the project resides. Click on it to highlight, and then click on the **Open** button and the project you have selected will open to the Main Configuration Screen.

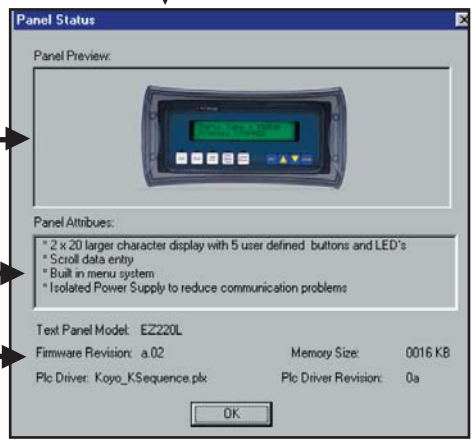
4. Begin editing your project.



Connect to Panel, View Panel Status and Firmware Version



Click on the Connect to Panel, View Panel Status & Firmware Version button to view the panel status. The **Panel Status** window will open. An example is shown below.



Picture of the panel type you are connected to

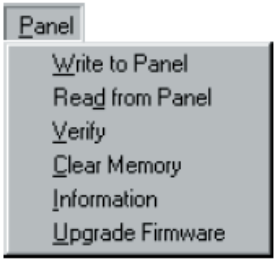
Key features of the current panel

Panel and PLC information is displayed, including panel model, Firmware Revision, Memory Size, PLC Driver, and PLC Driver Revision number

Upgrade Firmware

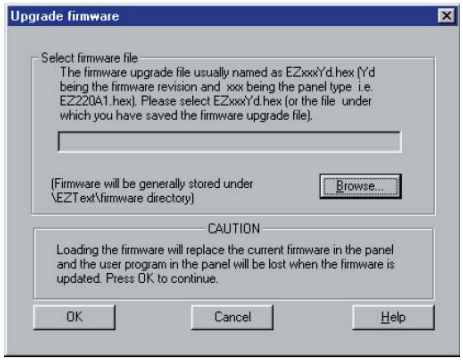
There may be occasional upgrades to the EZText Enhanced internal software, also referred to as the Exec or Firmware. Check the EZAutomation web site periodically for information about software and firmware upgrades.

To **Upgrade Firmware**:

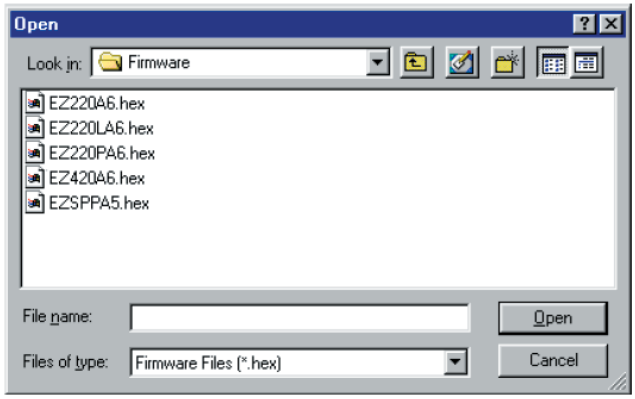


1. Place the panel in **Setup Mode** by pressing the UP/DOWN arrows on the EZText Enhanced Panel simultaneously.

2. Under the **Panel Menu**, click on **Upgrade Firmware.** The following screen will appear.

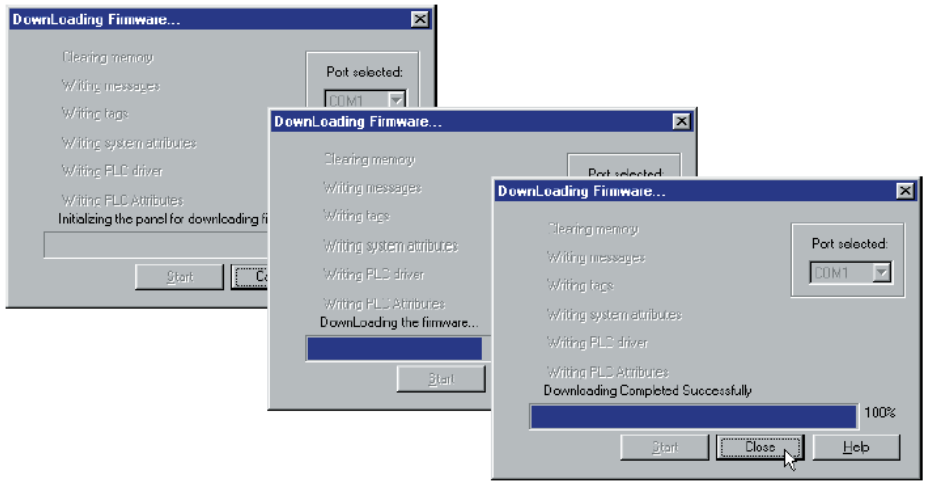


3. Click on the **Browse** button. The window, shown to the right, will open to the default folder, **Firmware** (located in the EZText Enhanced Program directory). If the firmware file has been downloaded from the EZAutomation website to another location, navigate to the new firmware file (.hex file).



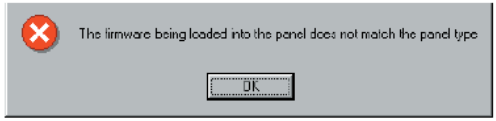
There are five types of firmware files (.hex) for the different types of EZText Enhanced Panels: **EZ220xy** — for the EZ-220 & EZ-220V panels; **EZ220Lxy** — for the EZ-220L panel; **EZ420xy** — for the EZ-420 panel; **EZ220Pxy** — for EZ-220P & EZ-220PV panels (not covered in this manual); and the **EZSPPxy** —for the EZ-SP Set Point Panel (also, not covered in this manual). The "x" represents the major revision of the firmware (e.g., A). "y" represents the minor revision (e.g., 1). **Make sure that you select the correct firmware.hex file** for your type panel, and send the upgrade to the panel.

4. Select the appropriate **COM** port under **Port Selected** (if necessary) and click on the **Start** button to begin downloading the firmware to the EZText Enhanced Panel. A status bar will let you know when the upgrade is complete. Click on **Close** when complete.



When you initialize the **Upgrade Firmware** process, the EZText Enhanced Panel Message display will read **SELF TESTING**. When the download begins, the display will read **LOADING EXEC**. When the download is complete, the panel will enter the Run Mode.

If the message **INCOMPATIBLE EXEC** is displayed on the panel while the Upgrade is in process, it means that the wrong firmware file has been sent to the panel. You will also receive an error message from the EZText Enhanced Programming Software, as shown below. If this happens, do the following:



1. Click on the **OK** button on the Error Message.
2. Click on the **Cancel** button on the **Downloading Firmware** window.
3. Click on **Upgrade Firmware** to start the process over, being careful to select the correct firmware.hex file.

Upgrade Firmware, when you press the Start button, the panel will display SELF TESTING while the upgrade is initializing.

When the download begins, the panel will display LOADING EXEC.

If you get the message, INCOMPATIBLE EXEC, you have sent the wrong firmware file. Exit all windows and start the Upgrade

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Maintenance & Troubleshooting

6

In this chapter....

Maintenance
— Fuse Reset
— Precautions
— Screen Overlay/Chemical Compatibility
— Screen Overlay Cleaning
— Gasket Replacement
Troubleshooting
— Panel Configuration Problems
— PLC Errors
— Warranty Repairs
— Out of Warranty Repairs
— Frequently Asked Questions (FAQs)

Maintenance

Fuse Reset

The EZText Enhanced Panel features an AUTO-RESET fuse (0.65 Amp polyfuse). It is reset by removing power for 5 minutes and then reapplying power to the unit.

Precautions

To ensure the longevity and effectiveness of the EZText Enhanced Panel, please take note of the following precautions:

- Do not press sharp objects against the pushbuttons or screen overlay.
- Do not strike the panel with hard objects.
- Do not press the pushbuttons or screen overlay with excessive force.
- Once the panel is mounted and has power applied, do not place any objects over the ventilation slots. This will result in heat buildup and may damage the unit.

Screen Overlay/Chemical Compatibility

The screen overlay has a polycarbonate surface. The following list is provided to make you aware of the general compatibility between chemicals that may be present in your work environment and the polyester surface of the overlay. Use the chart to determine those chemicals that are safe to use around your EZText Enhanced Panel and those that may harm the overlay. The list rates these chemicals as **E—Excellent**, **G—Good**, **F—Fair**, and **N—Not Recommended.** Because the ratings are for conditions at 134 °F (57°C), co

Screen Overlay Cleaning

CHEMICAL	RATING	CHEMICAL	RATING
Acetaldehyde	N	Ammonium Hydroxide @ 5%	N
Acetamide	N	Ammonium Hydroxide @ 30%	N
Acetic Acid @ 5%	G	Ammonium Oxalate	E
Acetic Acid @ 50%	G	Ammonium Salts	G
Acetone	N	n-Amyl Acetate	N
Acetonitrile	N	Amyl Chloride	N
Acrylonitrile	N	Aniline	N
Adipic Acid	E	Benzaldehyde	N
Alanine	N	Benzene	N
Allyl Alcohol	F	Benzoic Acid	G
Alum. Hydroxide	N	Benzyl Acetate	G
Aluminum Salts	G	Benzyl Alcohol	G
Amino Acids	E	Bromine	F
Ammonia	N	Bromobenzene	N
Ammonium Acetate	E	Bromoform	N
Ammonium Gloclate	F	Butadiene	N

CHEMICAL	RATING
n-Butyl Acetate	N
n-Butyl Alcohol	F
sec-Butyl Alcohol	F
tert-Butyl Alcohol	F
Butyric Acid	N
Calcium Hydroxide	N
Calcium Hypochlorite	N
Carbazole	N
Carbon Disulfide	N
Carbon Tetrachloride	N
Cedarwood Oil	F
Cellosolve Acetate	N
Chlorine @ 10% in air	G
Chlorine @ 10% moist	F
Chloroacetic Acid	N
p-Chloroacetophenone	N
Chloroform	N
Chromic Acid @ 10%	N
Chromic Acid @ 50%	N
Cinnamon Oil	F
Citric Acid @ 10%	G
Cresol	N
Cyclohexane	G
Decalin	N
o-Dichlorobenzene	N
p-Dichlorobenzene	N
Diethyl Benzene	N
Diethyl ether	N
Diethyl Ketone	N
Diethyl Malonate	N
Diethylene Glycol	F
Diethylene Glycol Ethyl Ether	N
Dimethylformamide	N
Dimethyl Sulfoxide	N
1, 4-Dioxane	F
Dipropylene Glycol	F
Ether	N
Ethyl Acetate	N
Ethyl Alcohol	G
Ethyl Alcohol @ 40%	G
Ethyl Benzene	N
Ethyl Benzoate	N
Ethyl Butyrate	N
Ethyl Chloride Liquid	N
Ethyl Cyanoacetate	N
Ethyl Lactate	N
Ethylene Chloride	N
Ethylene Glycol	F
Ethylene Glycol Methyl Ether	N

CHEMICAL	RATING
Ethylene Oxide	N
Fluorides	E
Fluorine	F
Formaldehyde	
Formaldehyde @ 40%	G
Formic Acid @ 3%	G
Formic Acid @ 50%	G
Formic Acid @ 99%	F
Fuel Oil	G
Gasoline	F
Glacial Acetic Acid	N
Glycerin	E
n-Heptane	G
Hexane	N
Hydrochloric Acid @ 5%	E
Hydrochloric Acid @ 20%	F
Hydrochloric Acid @ 35%	N
Hydrofluoric Acid @ 5%	F
Hydrofluoric Acid @ 48%	N
Hydrogen Peroxide @ 5%	E
Hydrogen Peroxide @ 30%	E
Hydrogen Peroxide @ 90%	E
Isobutyl Alcohol	G
Isopropyl Acetate	N
Isopropyl Alcohol	E
Isopropyl Benzene	N
Kerosene	E
Lactic Acid @ 3%	G
Lactic Acid @ 85%	G
Methoxyethyl Oleate	N
Methyl Alcohol	F
Methyl Ethyl Ketone	N
Methyl Isobutyl Ketone	N
Methyl Propyl Ketone	N
Methylene Chloride	N
Mineral Oil	G
Nitric Acid @ 10%	G
Nitric Acid @ 50%	F
Nitric Acid @ 70%	N
Nitrobenzene	N
n-Octane	F
Orange Oil	F
Ozone	G
Perchloric Acid	N
Perchloroethylene	N
Phenol Crystals	N
Phosphoric Acid @ 5%	E
Phosphoric Acid @ 85%	G
Pine Oil	E

CHEMICAL	RATING
Potassium Hydroxide @ 1%	N
Potassium Hydroxide conc.	N
Propane Gas	N
Propylene Glycol	F
Propylene Oxide	F
Resorcinol sat.	F
Resorcinol @ 5%	F
Salicylaldehyde	F
Salicylic Acid Powder	G
Salicylic Acid sat.	G
Salt Solutions Metallic	E
Silver Acetate	G
Silver Nitrate	E
Sodium Acetate sat.	G
Sodium Hydroxide @ 1%	N
Sodium Hydroxide @ 50%+	N
Sodium Hypochlorite @ 15%	F
Stearic Acid Crystals	G
Sulfuric Acid @ 6%	E
Sulfuric Acid @ 20%	G
Sulfuric Acid @ 60%	F

CHEMICAL	RATING
Sulfuric Acid @ 98%	N
Sulfur Dioxide Liquid	G
Sulfur Dioxide dry	G
Sulfur Salts	N
Tartaric Acid	G
Tetrahydrofuran	N
Thionyl Chloride	N
Toluene	N
Tributyl Citrate	N
Trichloroethane	N
Trichloroethylene	N
Triethylene Glycol	G
Tripropylene Glycol	G
Turpentine	N
Undecyl Alcohol	F
Urea	N
Vinylidene Chloride	N
Xylene	N
Zinc Stearate	E

The EZText Enhanced Panel screen should be cleaned as needed with warm, soapy water.

Gasket Replacement

The gasket may need to be replaced if it becomes damaged or worn. To replace the gasket, use P/N EZ-TEXT-S-GSK for the small models, EZ-220 and EZ-420. Use P/N EZ-TEXT-L-GSK for the large model (EZ-220L). To replace the gasket perform the following steps:

1. The gasket is removed and replaced from the back of the unit. Ensure that all pieces of old gasket have been removed from the panel enclosure surface where the gasket is affixed.

2. Remove the new replacement gasket from its plastic bag.

3. Remove the temporary protective covering from the adhesive side of the gasket.

4. Position gasket (adhesive side down) over the panel gasket surface and press firmly.

Troubleshooting

In this section we will explain how to isolate potential problems. If you cannot isolate and remedy the problem using the procedures we have outlined below, call technical support. For a list of EZText Enhanced Panels, EZText Enhanced Programming Software, and PLC Driver Error Messages, see Appendix C.

Panel Configuration Problems

EZText Enhanced Programming Software is used to create panel applications and to download/upload panel programs. If you are online with the EZText Enhanced Panel and communication fails, the following error message is displayed:

If you receive this EZText Enhanced Programming Software error message, check the following:

1. On the rear panel of the unit, observe Serial Port Communication TXD/RXD LEDs while attempting to Upload/Download a program. Both LEDs should be slowly and alternately flashing to indicate that the programming PC and the panel are connected. If the TXD (transmitter) LED is the only one flashing, or if the TXD/RXD LEDs are NOT alternating between flashes, check to ensure that the EZText Enhanced Panel is set to the Setup (programming) Mode. (To enter the Setup Mode, press and hold the UP Arrow Button while simultaneously pressing the DOWN Arrow button.)

2. Check to ensure that the programming cable (part number EZTEXT-PGMCBL) is properly connected at both ends.

3. Check that the correct communications port is selected with the EZText Enhanced Programming Software (i.e., COM1, COM2)

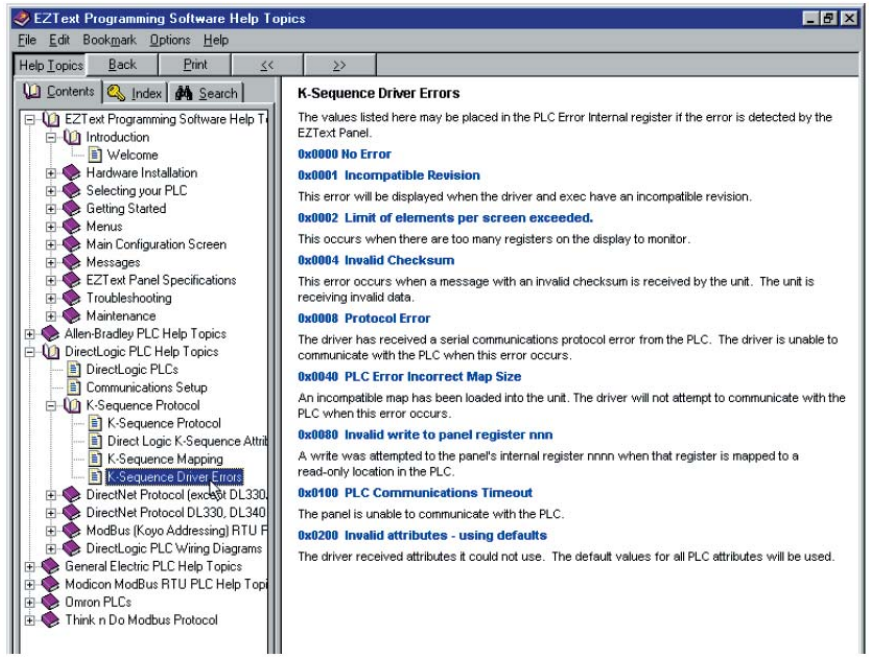
4. Check the 24 VDC power source and its connections.

5. After completing steps 1 through 4, above, repeat the procedure to Upload/Download a program.

PLC Errors

If you experience communication problems between the EZText Enhanced Panel and your PLC, you will receive an error message that is unique to that particular PLC. Look in the **Appendix C** of this manual, or the EZText Enhanced Programming Software Help for error messages for your type PLC. Each PLC Help topic lists the error messages and provides an explanation for each PLC driver. To access the PLC Help topics, perform the following steps.

a. Run EZText Enhanced Programming Software.
b. From the Main Menu, click on **Help > Help Topics**.
c. Under the **Contents** tab, find the type PLC you are using (next to a closed book icon) and click on it to view help topics.
d. Click on Driver Errors Topic.



You may also notice that the **Pushbuttons**, **Pushbutton LEDs**, and/or **Messages** are not working, Check the following:

1. Observe the TXD and RXD LEDs on the rear of the panel. If both LEDs are not steadily flashing or illuminated (depending upon the baud rate) check to ensure the proper communications cable is connected securely at both ends.
2. Check the PLC Communication information for the PLC type, protocol, baud rate, parity, stop bits, and address number. Use the PLC manual to determine the proper settings.
3. If you have configured your own cable, verify cable pinout using the PLC Wiring diagrams provided in Appendix B.
4. Check the 24 VDC power source.
5. If connected to a multiplexer, connect the panel directly to the PLC port.
6. Verify that the EZText Enhanced Panel registers are mapped correctly. Does the EZText Enhanced Panel register exist in the PLC? Is the register Read Only? Is the register Write Only?

Still need Help?

You have two additional sources for more information other than this manual.

Visit our website at www.EZAutomation.net
Our web site contains all of this information, any new feature releases, technical support, plus much more ...

Call our **Technical Support Group** Monday–Friday from 6 a.m. to Midnight CST at **1-877-774-EASY** or FAX us at **1-877-775-EASY.**

If you have any questions that you can't find an answer to, give us a call from 6 a.m. to Midnight CST at the number above and we will be glad to assist you.

Warranty Repairs

If your EZText Enhanced Panel is under warranty, **contact EZAutomation @ 1-877-774-EASY.**

Out of Warranty Repairs

If your EZText Enhanced Panel is out of warranty, **contact EZAutomation's Service Department for an evaluation of repair costs @ 1-877-774-EASY**. You can then decide whether it is more economical to proceed with factory repairs or purchase a new panel.

Frequently Asked Questions (FAQs)

1. **How do I format an address string when connecting to multiple PLCs?**
   Add the PLC station number to the beginning of the address string. Ex: PLC station is 3 and the address is V2000 the string would look like this, 3-V2000.

2. **Can I convert a project from one EZText Enhanced Panel type to another?**
   Yes, to do this simply change the panel type from one to another. This will keep all address and message information intact. The only exception is switching from any of the panels to the Set Point panel. This will cause all messages and addressing to be deleted. *Note: Switching panel types does not create a new project. If you wish to create a new project select NEW from the FILE menu.*

3. **Can I connect multiple panels to a single PLC?**
   Yes, there are two methods of doing this. The first would be to use the multiplexer (P/N EZ-MULTIDROP). You can connect up to five panels per multiplexer, and one multiplexer per serial port. The second method is to connect one panel per serial port.

4. **What is the maximum number of messages I can have in a project?**
   The maximum amount of PLC and Local messages is 256.

5. **What are Local Messages?**
   A Local Message is a text message that is used to provide instructions or information to the machine operator using a hierarchical file structure. The operator can scroll through these messages using the arrow keys to find information pertaining to a particular part of a process.

6. **What are PLC Messages?**
   A PLC Message is a text message that can be triggered by the PLC to provide the operator with important instructions, information, or warnings. PLC Messages will be displayed for 3 seconds before they can be cleared in order to make sure the operator has a chance to read the message. The operator can also view the last PLC Message displayed by pressing the **esc** key.

7. **How many characters can I have per message?**
   The maximum number of characters per message is 20. This is true for all messages except folder names. They are limited to 19 because of the plus "+" or minus "-" sign displayed at the beginning of the folder

name. (When using the Set Point panel, the maximum number of characters per message is 16.)

8. **I am using an EZ-220 panel and I can not access the password option. How do I do this?**
   The only panel that can have password protection is the EZ-220P. This is because the EZ-220P is the only panel that has a key pad usable for data entry.

9. **What is the maximum number of Embedded Data values I can have in a project?**
   The maximum number of Embedded Data values in a project is 300.

10. **How do I get my panel into Setup Mode?**
    To get the panel into Setup Mode press and hold the up arrow key while simultaneously pressing the down arrow key. To exit Setup Mode, press the **ESC** key.

11. **How do I get my panel to display PLC Messages?**
    To display a PLC message, using your ladder logic, place the number of the PLC Message you wish to display into one of the PLC Message Line Addresses (up to four if using the EZ-420). When the message number is placed in this register the panel will display the message corresponding with that number.

    Example: I want to display PLC Message One on Line One of my panel display. Using the ladder logic, I write a value of 1 to register V2000, which is set as PLC Message Line Address One. The panel displays PLC Message One on Line One of my panel display. The message will remain on the display until the **ESC** key is pressed.

12. **Why won't the panel display the same PLC Message twice in a row on the same message line?**
    This is because the message line must be reset by either setting the Line Register to zero, or by changing the value in the Line Register to some unused PLC Message number.

13. **Why do PLC Messages not clear when the ESC key is pressed?**
    The panel locks out all key presses for 3 seconds after a PLC Message is displayed in order to ensure the operator has a chance to read the message. Pressing **ESC** 3 seconds after the PLC Message is displayed will display the local message screen.

14. **Do the EZText Enhanced Panels support discrete addresses?**
    No, the EZText Enhanced Panels do not support discrete addresses. All addressing for the EZText Enhanced Panels must be in Word format.

15. **How do I insert a PLC Message?**
    In order to insert a PLC Message, there must be a gap in the message numbers. For example, I have PLC Message #1 and PLC Message #3 programmed. If I click on PLC Message #3 and click the INSERT A PLC MESSAGE button, PLC Message #2 will be inserted between PLC Messages 1 and 3.

16. **Can I renumber PLC Messages?**
    Yes, you can renumber PLC Messages; however, when changing a message number to a higher message number, all unused lower message numbers will be sent as "blank" messages when the project is transferred to the panel. Blank messages will count towards the maximum number of allowed messages in a project (256).

17. **Can you copy and paste messages?**
    Yes, you can copy and paste messages. Currently, however, you can copy or paste only one message at a time.

18. **It is hard to read the display on my panel. It's too bright. Is there a way to adjust the contrast?**
    Yes, to adjust the contrast on the display, simply place the panel into Setup Mode. While in Setup Mode you can use the up and down arrow keys to adjust the contrast.

19. **How do I enter new or change existing values on my EZText Enhanced Panel?**
    To enter a new value, or change an existing value on the EZText Enhanced Panel, simply move the cursor (using the arrow keys) to the message you want to edit. Once the cursor is on the message, press the ENTER key on your EZText Enhanced Panel. This will move the cursor to the data set and allow you to change the value. Once the value is changed, press the ENTER key again to accept the new value and move the cursor back to the beginning of the message.

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Appendix A

In this appendix....

—*EZText Enhanced Panel Application Worksheets*
—*Local Message Worksheet*
—*PLC Message Worksheet*

EZTEXT ENHANCED PANEL APPLICATION WORKSHEET

PROJECT NAME: _____

_____

PANEL TYPE: _____

Multi-Panel System Port Number:_____
(1–5 or N/A if Single Panel System)

PLC CONFIGURATION:

PLC MANUFACTURER: _____
PLC Model: _____
PLC Protocol: _____
PLC Address: _____
PLC Timeout: _____

Baud Rate: _____
Parity: _____
Data Bits:_____
Stop Bits:_____
Checksum: _____

BUTTONS/LEDS

BUTTON ACTION/PANEL ACKNOWLEDGE (BIT WRITE) PLC WORD _____

Button Action:

	(PLC Address)	Mom.	Alt.	Pnl Set/ PLC Rel *
F1	_____	☐	☐	☐
F2	_____	☐	☐	☐
F3	_____	☐	☐	☐
F4	_____	☐	☐	☐
F5	_____	☐	☐	☐

*** Panel Acknowledge of PLC Release:**

	(PLC Address)
ACK F1	_____
ACK F2	_____
ACK F3	_____
ACK F4	_____
ACK F5	_____

LED CONTROL/PLC BUTTON RELEASE (BIT READ) PLC WORD _____

LED Control:

	(PLC Address)	By Button	By Button & Flash	PLC **
LED1	_____	☐	☐	☐
LED2	_____	☐	☐	☐
LED3	_____	☐	☐	☐
LED4	_____	☐	☐	☐
LED5	_____	☐	☐	☐

*** PLC Button Release:**

	(PLC Address)
REL F1	_____
REL F2	_____
REL F3	_____
REL F4	_____
REL F5	_____

PLC Messages (PLC Words)

Line 1 _____

Line 2 _____

Line 3 _____ *(EZ-420 only)*

Line 4 _____ *(EZ-420 only)*

* *Panel Acknowledge and PLC Button Release are only used when using the Panel Set & PLC Release Button Action.*

** *LED Control by PLC is the only LED function that uses a PLC Address.*

EZTEXT ENHANCED PANEL APPLICATION WORKSHEET

LOCAL MESSAGES:

☐ Folder
☐ Message

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

☐ Folder
☐ Message

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

☐ Folder
☐ Message

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

☐ Folder
☐ Message

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

EZTEXT ENHANCED PANEL APPLICATION WORKSHEET

LOCAL MESSAGES:

☐ Folder
☐ Message

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

☐ Folder
☐ Message

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

☐ Folder
☐ Message

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

☐ Folder
☐ Message

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

EZTEXT ENHANCED PANEL APPLICATION WORKSHEET

PLC MESSAGES:

Message No._____

20 characters

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

Message No._____

20 characters

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

Message No._____

20 characters

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

Message No._____

20 characters

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

EZTEXT ENHANCED PANEL APPLICATION WORKSHEET

PLC MESSAGES:

Message No._____

20 characters

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

Message No._____

20 characters

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

Message No._____

20 characters

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

Message No._____

20 characters

DATA 1 _____ ☐ Read Only

☐ BCD ☐ Binary ☐ Read/Write

☐ PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

☐ BCD ☐ Binary ☐ BCD ☐ Binary

Appendix B

In this appendix....

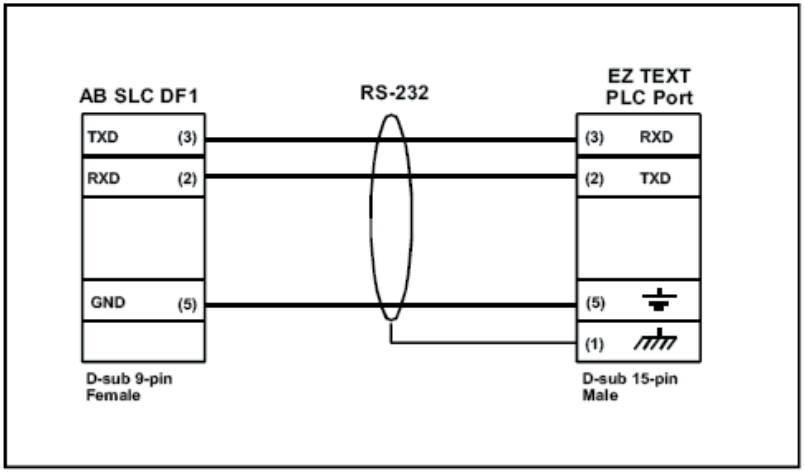
—*Cable Wiring Diagrams for the following PLCs*

Allen Bradley
Aromat
Control Techniques
Control Technology Corporation (CTC)
DeviceNet
Ethernet
General Electric
Idec
Mitsubishi
Modicon
Omron
Profibus
Direct Logic
Siemens
Square D Symax
Texas Instruments
Uni-Telway

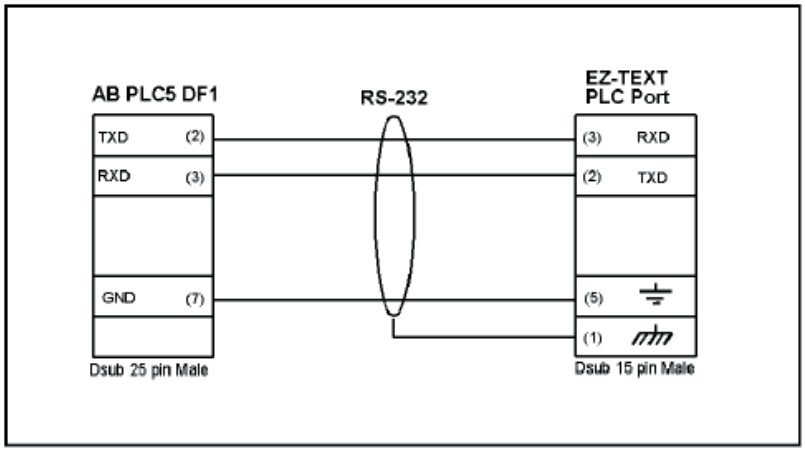
Wiring Diagrams

The following diagrams depict the wiring pinouts for the EZText Enhanced Panel to PLC Cables. If EZAutomation provides the cable, the part number is included with the description. Wiring diagrams for some PLCs are provided so that you may construct your own cable.

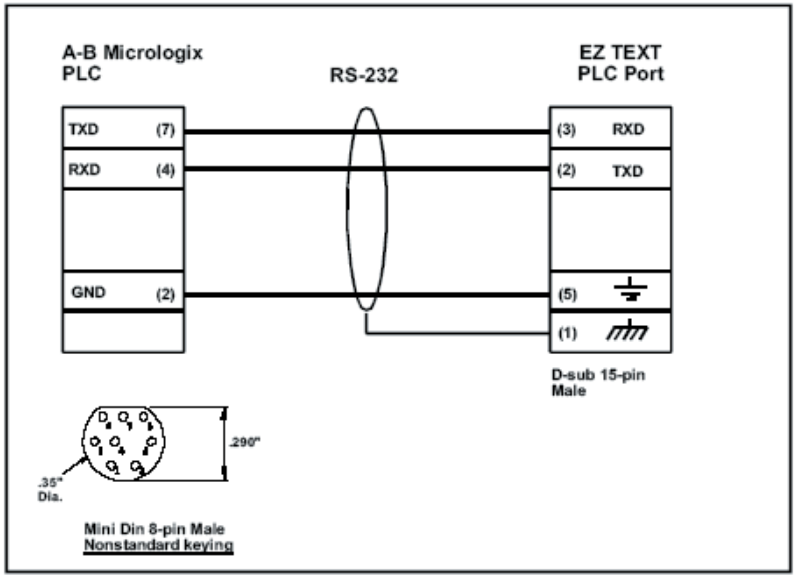
Allen-Bradley SLC DF1 RS-232 (P/N EZP-SLC-232-CBL)



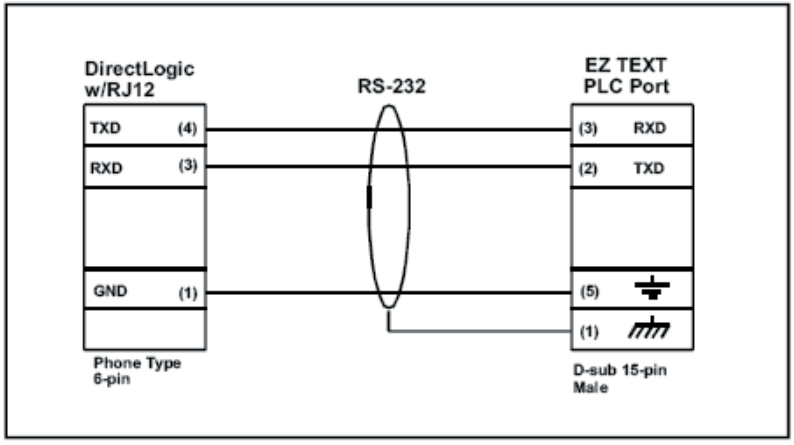
Allen-Bradley PLC5 DF1 RS-232 (P/N EZP-PLC5-232-CBL)



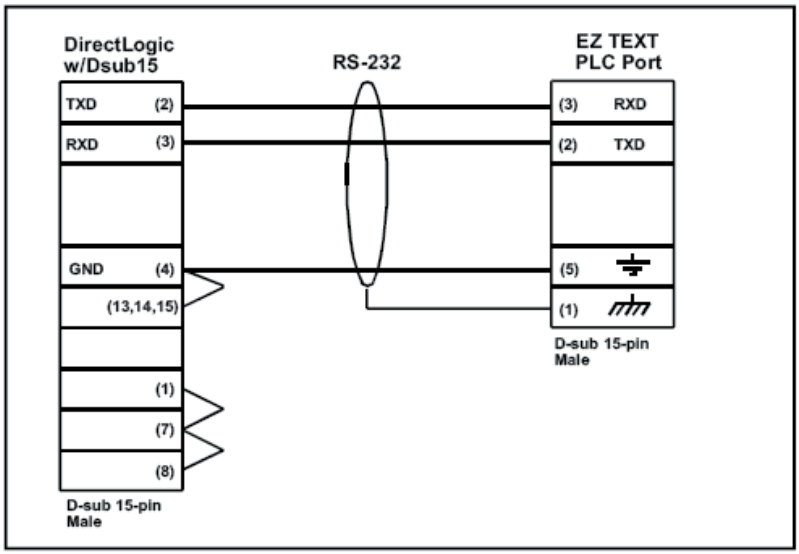
Allen-Bradley Micrologix 1000/1200/1500 RS-232 (P/N EZP-MLOGIX-CBL)



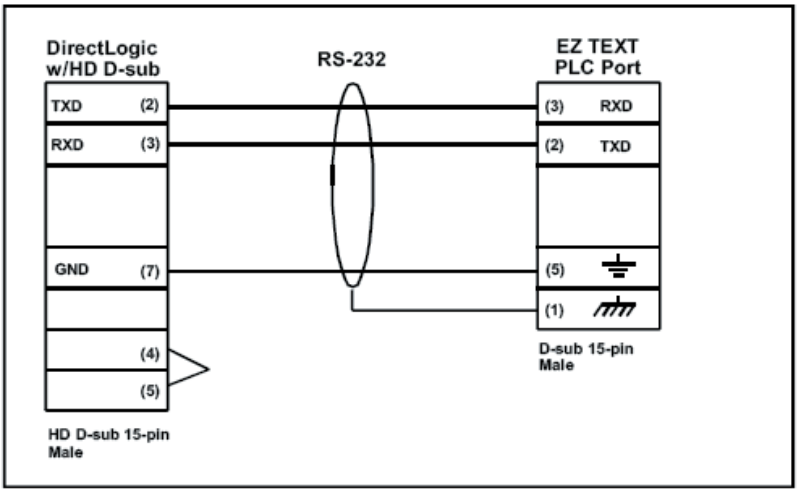
DirectLogic PLC RJ-12, D05, DL105, DL205, DL350, and DL450, RS-232 (P/N EZP-2CBL)



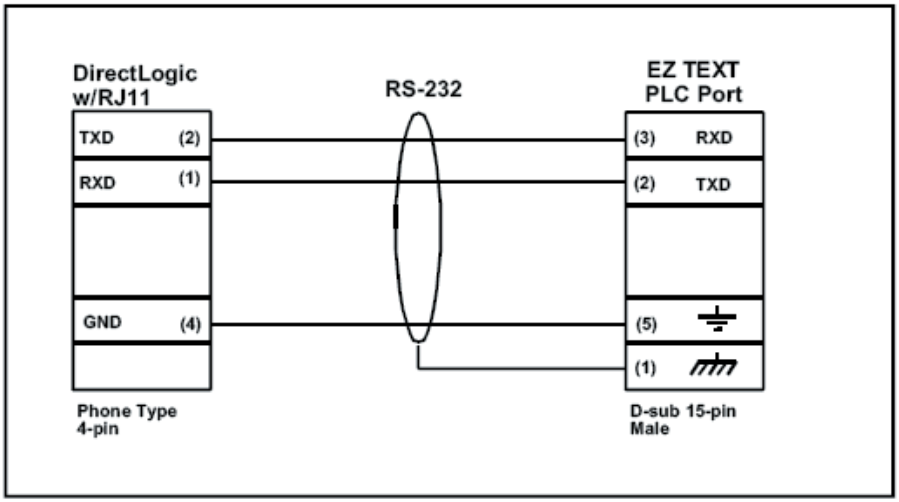
DirectLogic PLC 15-pin D-SUB, DL405 RS-232 (P/N EZP-4CBL-1)



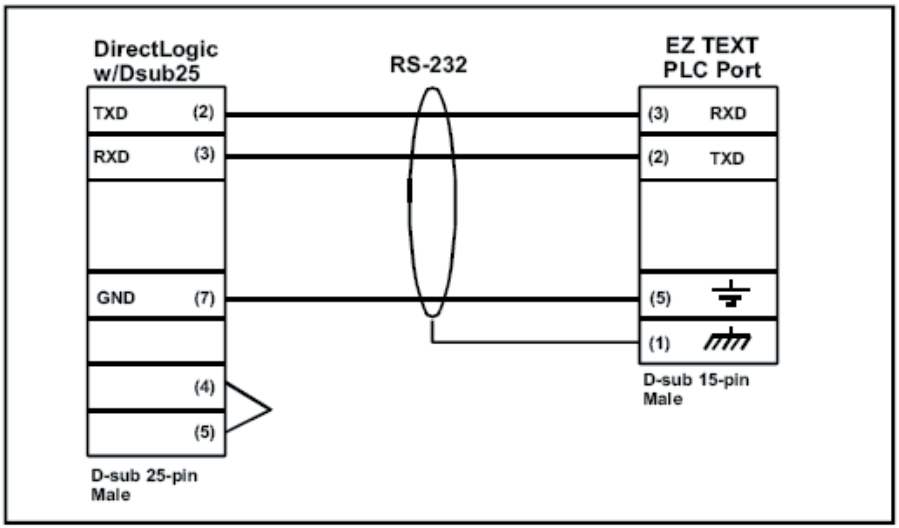
DirectLogic PLC VGA 15-pin , 250, RS-232 (P/N EZP-2CBL-1)



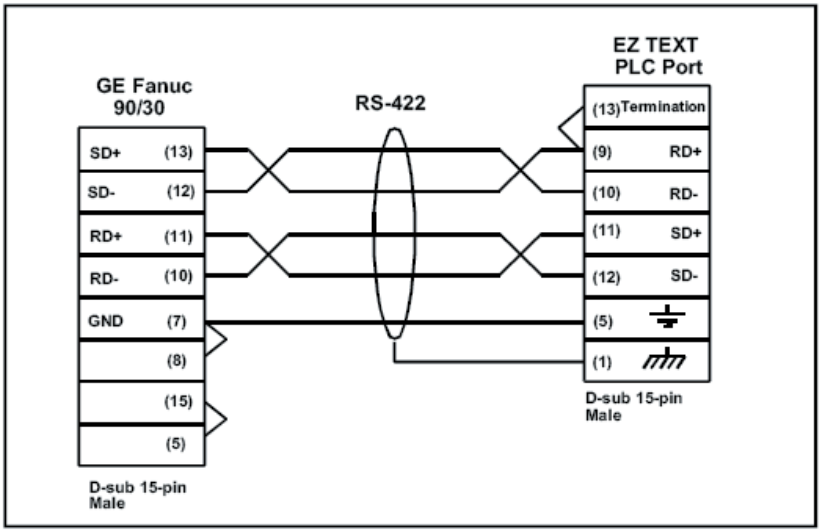
DirectLogic PLC RJ-11 , 340, RS-232 (P/N EZP-3CBL)



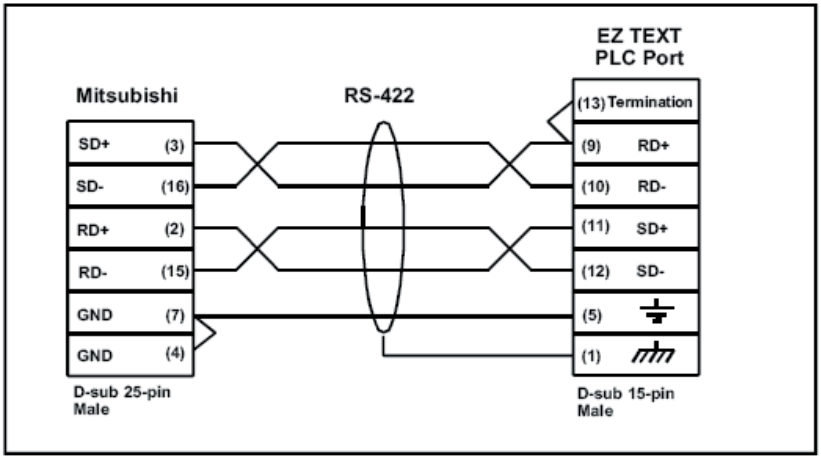
DirectLogic PLC 25-pin D-SUB, DL405, 350, 305 DCU, and all DCMs RS-232 (P/N EZP-4CBL-2)



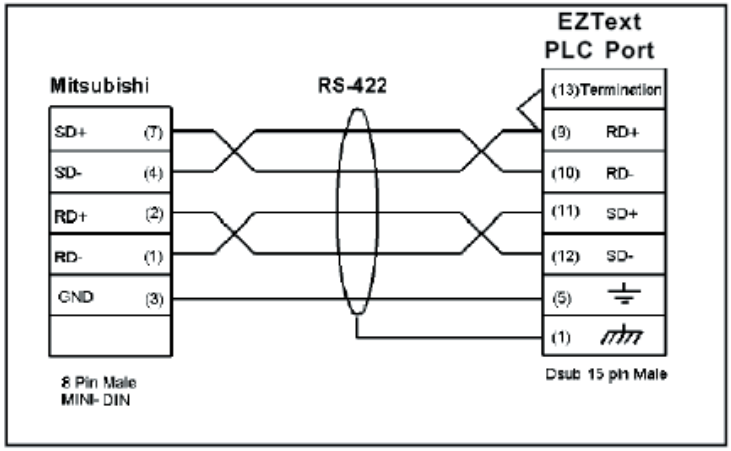
General Electric 90/30 and 90/70 15-pin D-SUB RS-422 (P/N EZP-90-30-CBL)



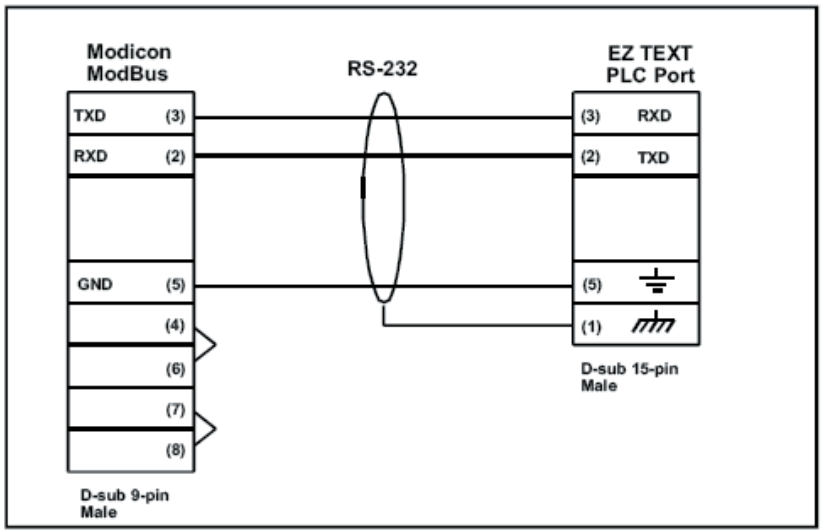
Mitsubishi FX Series 25-pin RS-422 (P/N EZP-MITSU-CBL)



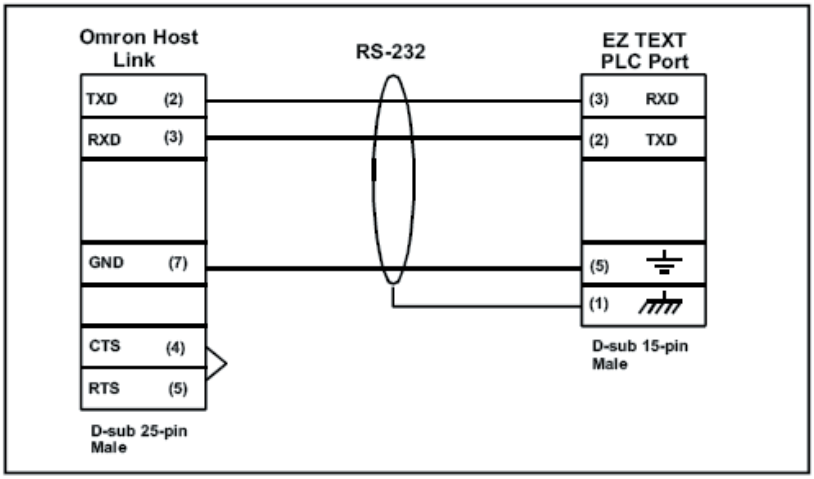
Mitsubishi FX Series 8-pin MINI-DIN RS-422 (P/N EZP-MITSU-CBL-1)



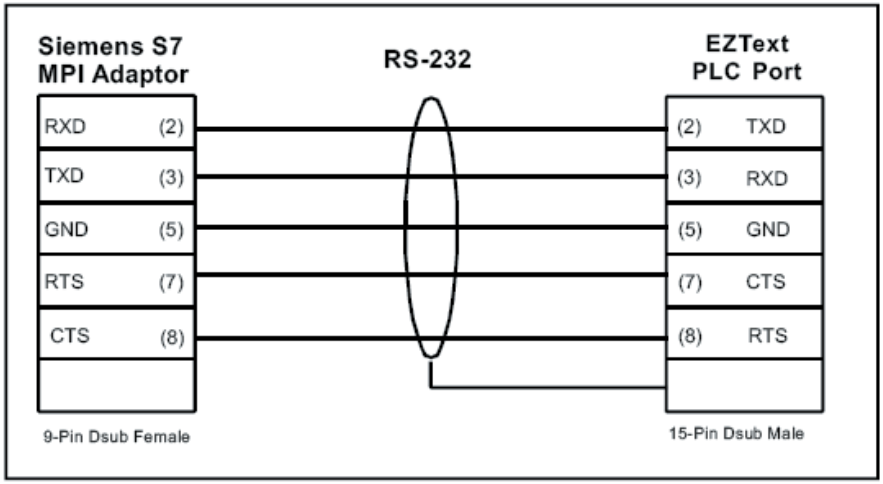
Modicon ModBus 9-Pin D-SUB RS-232 (P/N EZP-MODRTU-CBL)



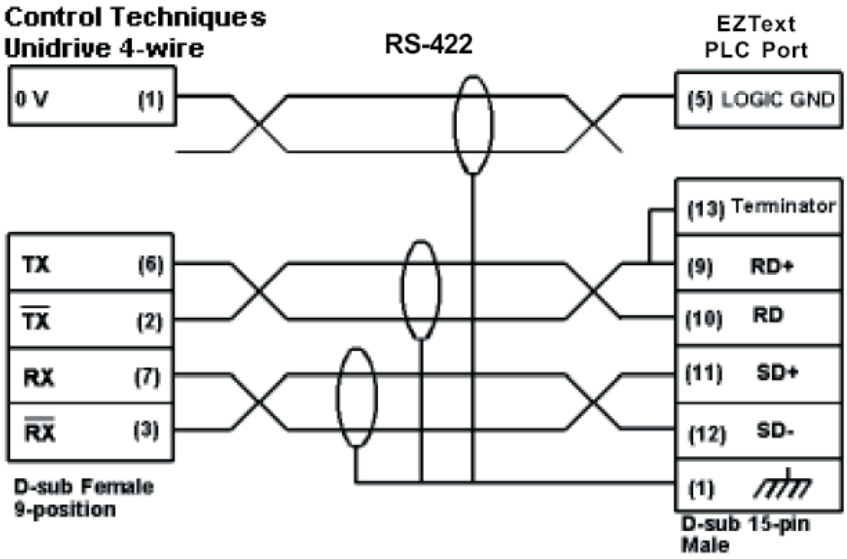
Omron C200, C500 RS-232 (P/N EZP-OMRON-CBL)



Siemens S7 MPI Adaptor (P/N EZP-S7MPI-CBL)

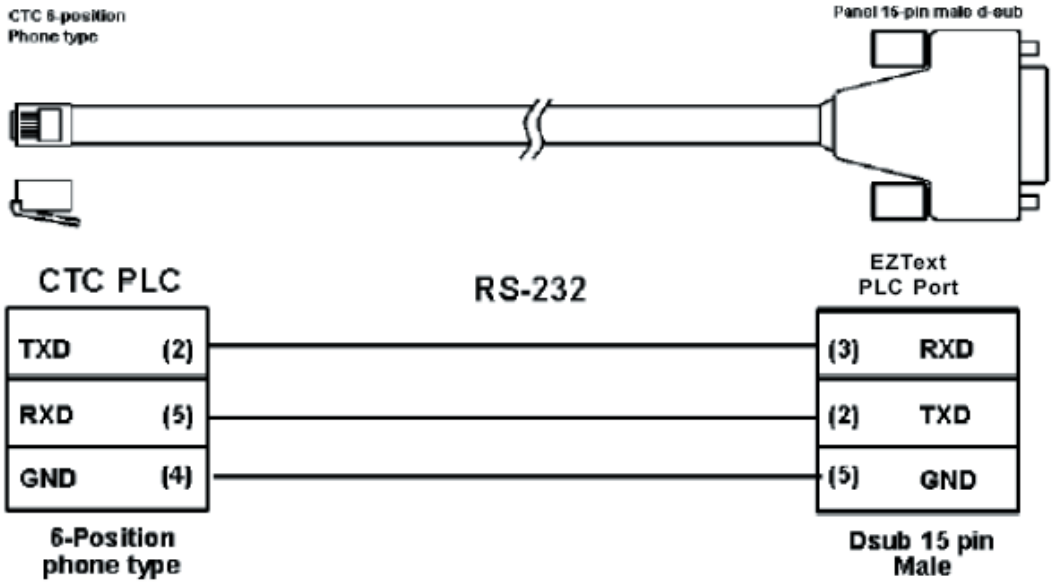


Control Techniques Unidrive 4-wire, RS-422, D-Sub Female 9 position (P/N EZP-CTRLUNI-CBL)



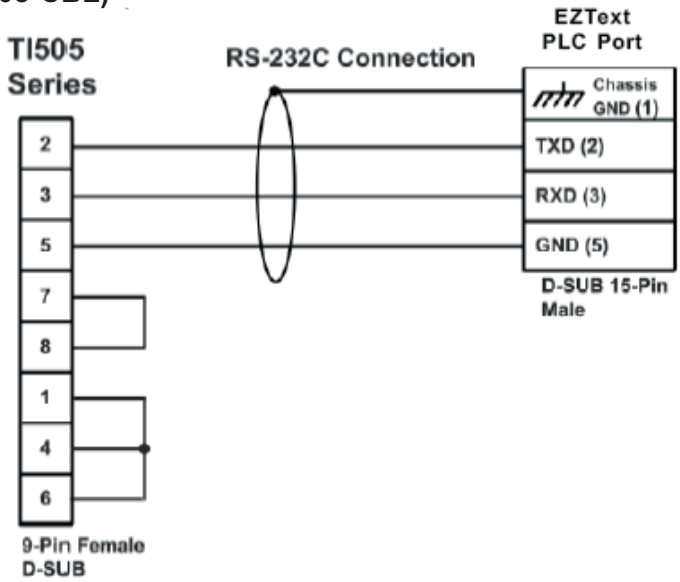
The hardware connection for the Control Techniques Unidrive PLCs is RS-422 (4-wire).

Control Technology Corporation (CTC) PLC, RS232, RJ-12 Port (P/N EZP-CTCBI-CBL)

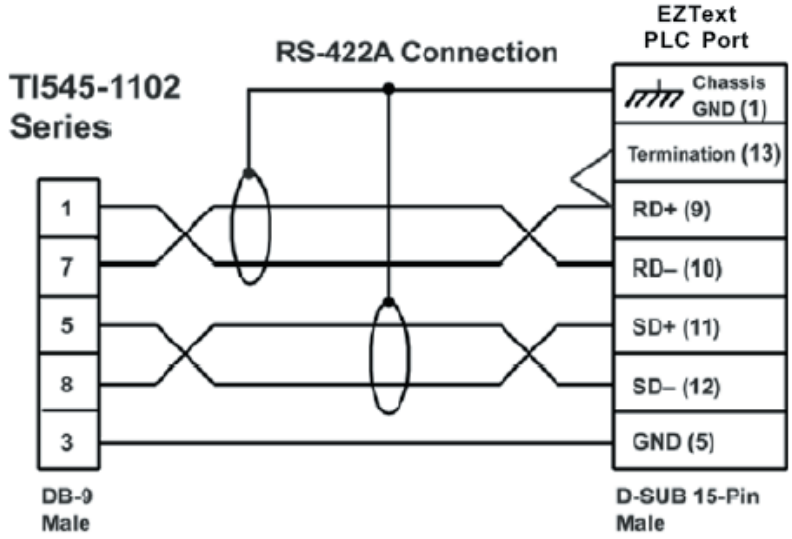


The hardware connection for the CTC2600 and CTC2700 is RS-232C.

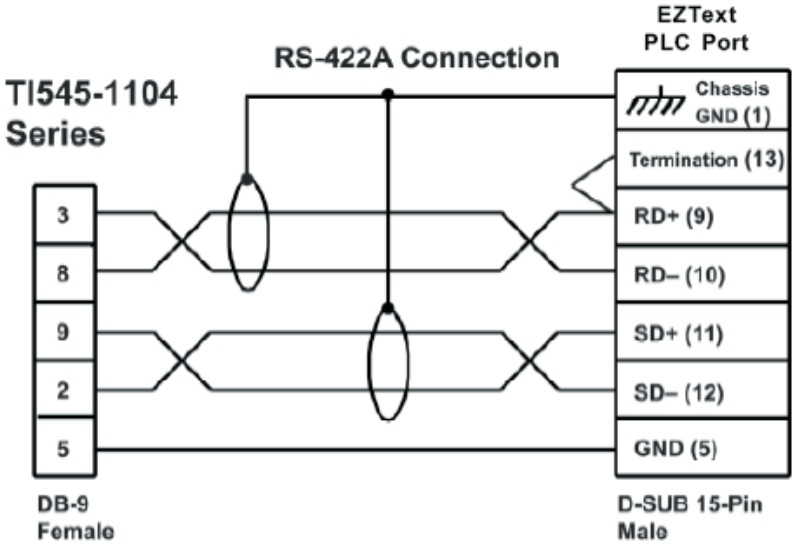
Texas Instruments 505 Series PLC, RS-232C, D-Sub Female 9 pin (P/N EZP-TX505-CBL)



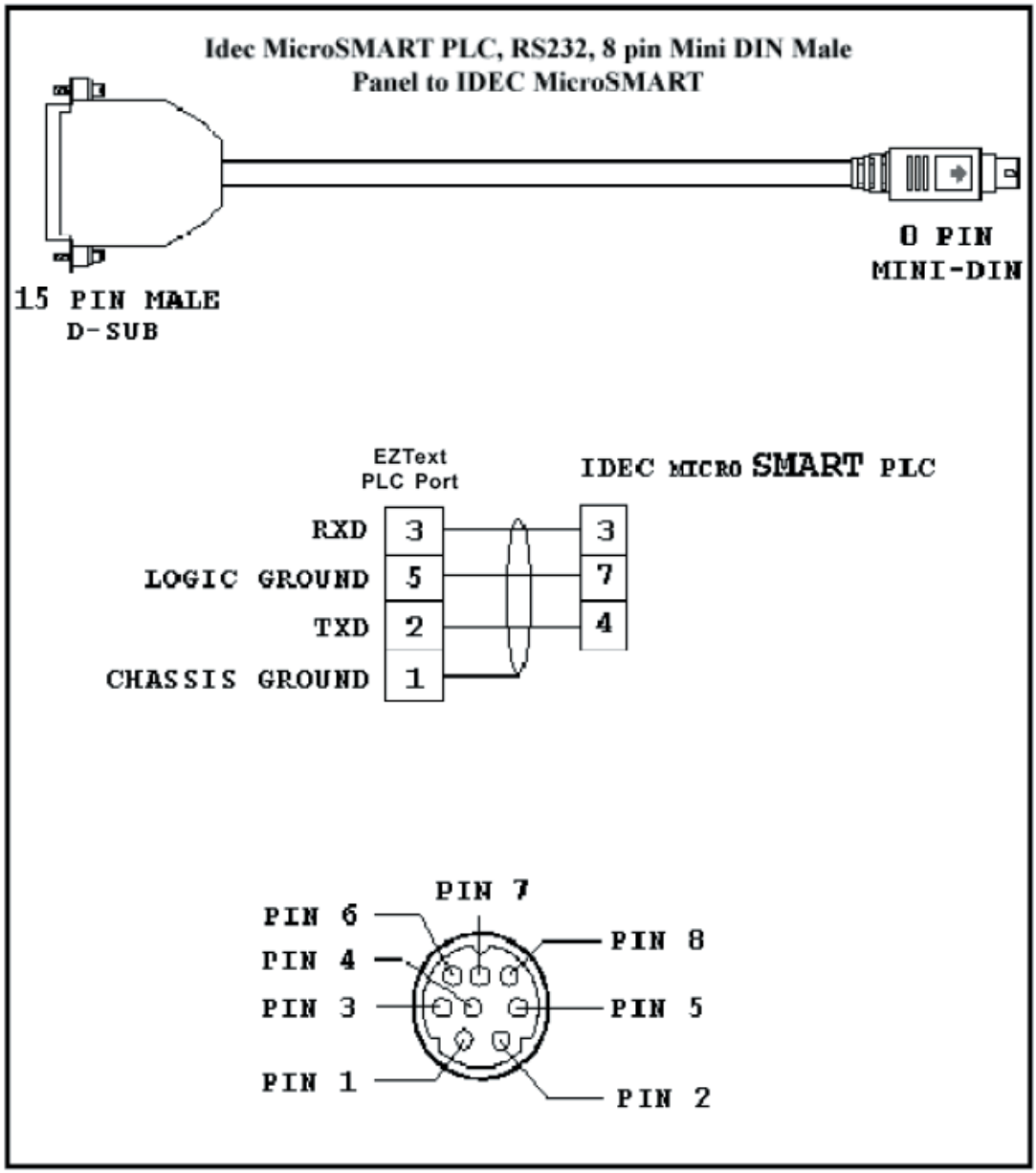
Texas Instruments 545-1102 Series PLC, RS-422A, D-Sub Male 9 pin (P/N EZP-TX545-CBL)



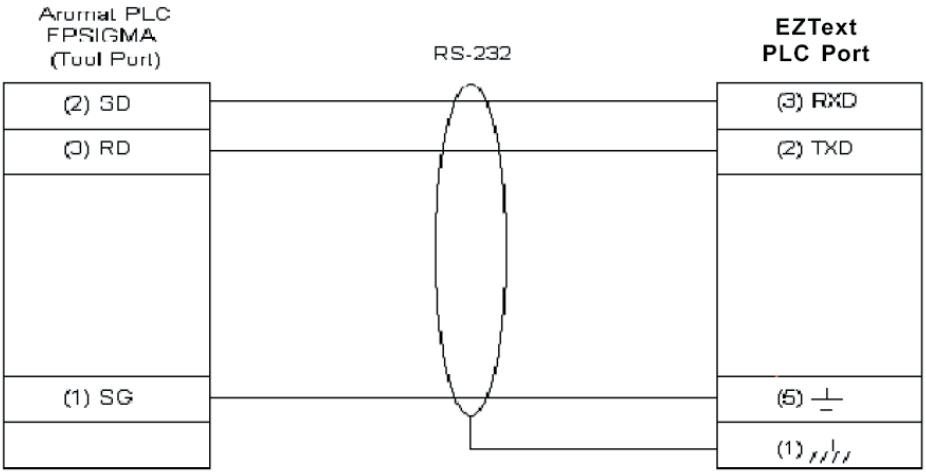
Texas Instruments 545-1104 Series PLC, RS-422A, D-Sub Female 9 pin (P/N EZP-TX545-CBL1)

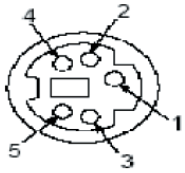


Idec MicroSMART PLC, RS232, 8 pin Mini DIN Male
(P/N EZP-IDECS-CBL)



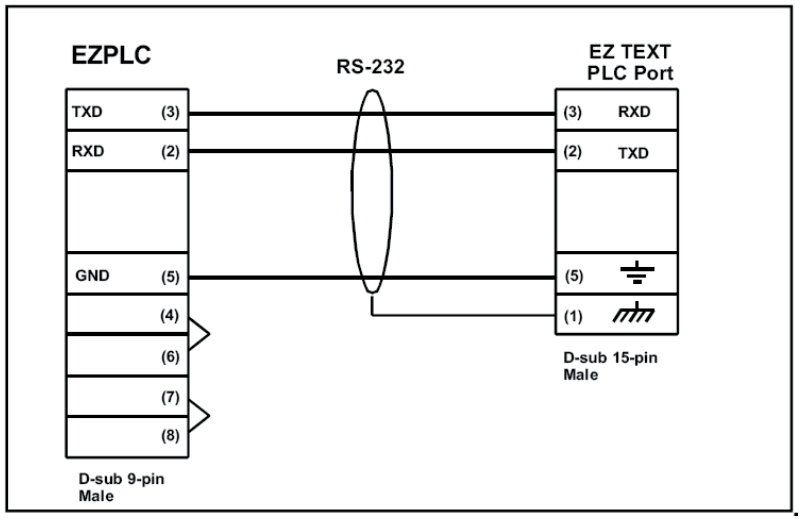
Aromat PLC, RS232, Mini DIN 5-pin Male Connector (P/N EZP-ARCOL-CBL)





Mini Din 5-pin Male
Non-standard Connector

EZAutomation EZPLC 9-Pin D-SUB RS-232 (P/N EZP-CBL)



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C

Appendix C

In this appendix....

—PLC Driver Error Messages
—EZText Enhanced Panel Error Messages
—EZText Enhanced Programming Software Error Messages

PLC Driver Error Messages

ALLEN-BRADLEY PLCs

Driver Errors for Micrologix/SLC 500 with DF1 Half Duplex Protocol

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have incompatible revision.

0x0002 PLC error incorrect map size

This error occurs when an incompatible map is loaded into the unit. The driver will not attempt to communicate with the PLC when this occurs.

0x0004 Limit of elements per screen exceeded

This occurs when there are too many registers on the display that can be monitored.

0x0008 PLC MSG time-out CMD=X

This error occurs when the unit does not receive a reply to its command. The unit will retry a command and wait for the specific time-out period before reporting this command. The command ID causing this error is reported. CMD 0xAA=READ CMD 0XA2=WRITE.

0x0010 Invalid PLC attributes - using defaults

This will occur if the PLC driver receives an invalid set of attributes. The default attributes will be used when this occurs.

0x0020 PLC bad checksum CMD=X

This occurs when a reply with an invalid checksum is received by the unit. The command ID of the command that incurred the error is reported as part of the message. CMD 0XAA=Read CMD 0XA2=Write.

0x0040 PLC Error STS=XX EXTSTS=XX CMD=ZZ

This is reported when a controller responds to a command with an error. The error code is shown and can be looked up in the Allen-Bradley documentation. The command ID of the command causing the error is reported. CMD 0XAA=Read, CMD 0XA2=Write.

0x0080 PLC Nack Error

This error is reported when a controller responds to a command with a negative acknowledgment.

0x0100 PLC element read-only

This is reported when an attempt is made to write to an element with a read-only map entry. Read-only map entries are: input file, output file, and all discrete entries. The driver can only read discrete entries, it cannot write to a single bit within a word.

0x0200 PLC TX buffer full

The error is reported if the transmit buffer becomes full in the PLC driver.

0x0400 PLC error no reply

This occurs when the DF1 modules indicate the PLC has no reply to the last message. It is usually displayed when the unit reestablishes communications after a PLC message time-out error. This can also occur when the panel message time-out is too short. If the PLC message time-out does not give the PLC enough time to respond to the message this error will be displayed.

0x0800 Error code xx

This is reported when the PLC driver encounters an unknown error. This should never occur.

Driver Errors for PLC5 with DF1 Protocol

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 PLC error incorrect map size

This error occurs when an incompatible map is loaded into the unit. The driver will not attempt to communicate with the PLC when this occurs.

0x0004 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to be monitored. The number of registers on the display must be reduced.

0x0008 PLC MSG Time-out CMD=X

This occurs when the unit does not receive a reply to its command. The unit will retry a command and wait for the specified time-out period before reporting this command. The command ID causing the error is reported.

0x0010 Invalid PLC attributes - using defaults

This error is reported when the PLC driver receives an invalid set of PLC attributes. The default attributes will be used when this error occurs.

0x0020 PLC Bad checksum CMD=X

This error occurs when a reply with an invalid checksum is received by the unit. The command ID of the command that incurred the error is reported as part of the message.

0x0040 PLC Error STS=xx EXTSTS=yy CMD=zz

This error is reported if a controller responds to a command with an error. The error code is shown and can be looked up in the Allen-Bradley documentation. The command ID of the command causing the error is reported.

0x0080 PLC Nack Error

This error is reported if a controller responds to a command with a negative acknowledgment error.

0x0100 PLC Element Read Only

This error is reported if an attempt is made to write to an element with a read only map entry. Read only map entries are: INPUT file, OUTPUT file, and the control word of TIMERS, COUNTERS, and CONTROL structures.

0x0200 PLC Transmit Buffer Full

The error is reported if the transmit buffer becomes full in the PLC driver.

0x8000 Error Code XX

This error is reported when the PLC driver encounters an unknown error. This should never occur.

Time-outs

This specifies the amount of time the EZText Enhanced Panel will wait for a reply to a message before triggering an error. Each message sent to the PLC must be acknowledged by the PLC. The acknowledgment must be received within the time-out period. After the message has been sent twice with no response, the time-out message will be displayed.

Driver Errors for Micrologix/SLC 500 with DF1 Full Duplex Protocol

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have incompatible revision.

0x0002 PLC error incorrect map size

This error occurs when an incompatible map is loaded into the unit. The driver will not attempt to communicate with the PLC when this occurs.

0x0004 Limit of elements per screen exceeded

This occurs when there are too many register on the display that can be monitored.

0x0008 PLC MSG time-out CMD=X

This error occurs when the unit does not receive a reply to its command. The unit will retry a command and wait for the specific time-out period before reporting this command. The command ID causing this error is reported. CMD 0xAA=READ CMD 0XA2=WRITE.

0x0010 Invalid PLC attributes - using defaults

This will occur if the PLC driver receives an invalid set of attributes. The default attributes will be used when this occurs.

0x0020 PLC bad checksum CMD=X

This occurs when a reply with an invalid checksum is received by the unit. The command ID of the command that incurred the error is reported as part of the message. CMD 0XAA=Read CMD 0XA2=Write.

0x0040 PLC Error STS=XX EXTSTS=XX CMD=ZZ

This is reported when a controller responds to a command with an error. The error code is shown and can be looked up in the Allen-Bradley documentation. The command ID of the command causing the error is reported. CMD 0XAA=Read, CMD 0XA2=Write.

0x0080 PLC Nack Error

This error is reported when a controller responds to a command with a negative acknowledgment.

0x0100 PLC element read-only

This is reported when an attempt is made to write to an element with a read-only map entry. Read-only map entries are: input file, output file, and all discrete entries. The driver can only read discrete entries, it cannot write to a single bit within a word.

0x0200 PLC TX buffer full

The error is reported if the transmit buffer becomes full in the PLC driver.

0x0400 PLC error no reply

This occurs when the DF1 modules indicate the PLC has no reply to the last message. It is usually displayed when the unit reestablishes communications after a PLC message time-out error. This can also occur when the panel message time-out is too short. If the PLC message time-out does not give the PLC enough time to respond to the message this error will be displayed.

0x0800 Error code xx

This is reported when the PLC driver encounters an unknown error. This should never occur.

DIRECTLOGIC PLCS

K-Sequence Protocol/Direct Logic PLC Models: DL05, DL105, D2-230, D2-240, D2-250, D3-350, D4-430, D4-440, D4-450

0x0000 No Error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded.

This occurs when there are too many registers on the display to monitor.

0x0004 Invalid Checksum

This error occurs when a message with an invalid checksum is received by the unit. The unit is receiving invalid data.

0x0008 Protocol Error

The driver has received a serial communications protocol error from the PLC. The driver is unable to communicate with the PLC when this error occurs.

0x0040 PLC Error Incorrect Map Size

An incompatible map has been loaded into the unit. The driver will not attempt to communicate with the PLC when this error occurs.

0x0080 Invalid write to panel register nnn

A write was attempted to the panel's internal register nnnn when that register is mapped to a read-only location in the PLC.

0x0100 PLC Communications Timeout

The panel is unable to communicate with the PLC.

0x0200 Invalid attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

DirectNet Protocol (except DL330/340)/ Direct Logic PLC Models: DL05, D2-240, D2-250, D2-240/250 DCM, D3-350, D3-350 DCM, D4-430, D4-440, D4-450, DL405 Series all with DCM

0x0000 No Error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded.

This occurs when there are too many registers on the display to monitor.

0x0004 Invalid Checksum

This error occurs when a message with an invalid checksum is received by the unit. The unit is receiving invalid data.

0x0008 Protocol Error

The driver has received a serial communications protocol error from the PLC. The driver is unable to communicate with the PLC when this error occurs.

0x0040 PLC Error Incorrect Map Size

An incompatible map has been loaded into the unit. The driver will not attempt to communicate with the PLC when this error occurs.

0x0080 Invalid write to panel register nnn

A write was attempted to the panel's internal register nnnn when that register is mapped to a read-only location in the PLC.

0x0100 PLC Communications Timeout

The panel is unable to communicate with the PLC.

0x0200 Invalid attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

ModBus (Koyo Addressing) RTU Protocol/Direct Logic PLC Models: DL05, D2-250, D3-350, D4-450

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to monitor.

0x0004 Reply received from invalid slave nnn

If the driver received a message from a PLC with address nnn when one was not expected.

0x0008 Invalid Checksum Received

This error occurs when a message with an invalid checksum is received by the unit.

0x0010 Incorrect Reply

The driver received an incorrect or unexpected reply from the PLC with address nnn.

0x0020 Error - PLC nnn - <error>

The driver received a ModBus message exception code from the PLC. The <error> strings are:

Illegal Function

The PLC received an invalid function code.

Illegal Data Address

The address requested is not allowable for the PLC. This may appear instead of a time-out when a PLC is in bridge mode to a ModBus Plus network. The PLC that the Panel is communicating with will return this error if the message could not be passed on to the addressed PLC.

Illegal Data Value

The value in the data field is not allowed for the PLC.

Slave Device Failure

An unrecoverable error occurred in the PLC.

Acknowledge

The PLC requires more time to process the message.

Slave Device Busy

The PLC is processing a long command and is not ready for a new one.

Negative Acknowledgment

The PLC cannot perform the function requested.

Memory Parity Error

An error was detected in the PLC memory.

0x0040 Broadcast not allowed in read command

If a broadcast message to read was attempted.

0x0080 PLC time-out - PLC nnn

The EZText Enhanced Panel is unable to communicate with the PLC with address nnn. This may be corrected by increasing the time-out time or increasing the baud rate. An alternative may be to lower the number of registers or coils per message. This causes the panel to use smaller messages, that the PLC should be able to respond to at a faster rate.

0x0100 PLC reply length exceeded - PLC nnn

The driver received, or is receiving a message with a length exceeding the maximum allowed by ModBus protocol from the PLC with address nnn.

0x0200 Invalid write to panel register nnn

A write was attempted to the panel's internal register nnnn when that register is mapped to a read-only location in the PLC.

0x0400 Invalid attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

DirectNet Protocol DL330, DL340/Direct Logic PLC Models: D3-330/330P, D3-340

0x0000 No Error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded.

This occurs when there are too many registers on the display to monitor.

0x0004 Invalid Checksum

This error occurs when a message with an invalid checksum is received by the unit. The unit is receiving invalid data.

0x0008 Protocol Error

The driver has received a serial communications protocol error from the PLC. The driver is unable to communicate with the PLC when this error occurs.

0x0040 PLC Error Incorrect Map Size

An incompatible map has been loaded into the unit. The driver will not attempt to communicate with the PLC when this error occurs.

0x0080 Invalid write to panel register nnn

A write was attempted to the panel's internal register nnnn when that register is mapped to a read-only location in the PLC.

0x0100 PLC Communications Timeout

The panel is unable to communicate with the PLC.

0x0200 Invalid attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

GENERAL ELECTRIC PLCS

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to monitor.

0x0004 PLC Time-out - X = YYYYY

This error results from a loss of communication with a PLC. The X shown stands for the PLC that timed out. This will be a number one through 16 or default. The YYYYY stands for the actual SNP-X ID string entered for the PLC that timed out. If the SNP-X ID string is a null string, the space after the equal sign will be the last character in the error string.

0x0008 Invalid PLC Attributes - using default

The attributes passed from the program loader, or the existing attributes in memory do not match those expected by the driver. The default attributes will be used and normal operations will commence.

0x0010 Invalid Write to panel register xxx

There was an attempted write to panel internal register number xxx which is mapped to an address which has read-access only.

0x0020 PLC Message Error

A communications error occurred which resulted in an invalid message. It could also indicate that an address was requested which is out of the range limits of the PLC.

0x0040 Incorrect Map Size

This error occurs when a map is stored that is not the size the PLC expects.

MITSUBISHI PLCs

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many elements on the display to monitor.

0x0004 Communications Error

This error occurs when there is an error involving communications between the panel and PLC. A communications error results from one of the following: no or bad physical connection between panel and PLC, bad checksum in reply from the PLC, bad checksum in command from the panel, bad command from the panel, bad format of command from the panel, or unexpected reply from the PLC.

0x0010 Invalid Write - Panel register : xxxx

This error will occur when an attempt to write to a read only MFX element. The panel register xxxx contains the address of the MFX element that is read-only.

0x0020 PLC Message Time-out

This message occurs when the unit does not receive a reply to its command. The unit will retry a command and wait for the specified time-out period before reporting this command.

0x0040 Invalid PLC attributes - using defaults

This error is reported when the PLC driver receives an invalid set of PLC attributes. The default attributes will be used when this error occurs.

Timeouts

The timeout time specifies the amount of time the panel will wait for a reply to a message before triggering an error. Each message sent to the PLC must be acknowledged by the PLC. The acknowledgment must be received within the time-out period. If the acknowledgment is not received the driver will retry the command. After the message has been sent twice with no response, the time-out error message will be posted.

MODICON PLC WITH MODBUS RTU PROTOCOL

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to be monitored. The number of registers on the display must be reduced.

0x0004 Reply received from invalid slave nnn

If the driver received a message from a PLC with address nnn when one was not expected.

0x0008 Invalid Checksum Received

This error occurs when a message with an invalid checksum is received by the unit.

0x0010 Incorrect Reply

The driver received an incorrect or unexpected reply from the PLC with address nnn.

0x0020 Error - PLC nnn - <error>

The driver received a Modbus message exception code from the PLC. The <error> strings are:

Illegal Function
The PLC received an invalid function code.

Illegal Data Address
The address requested is not allowable for the PLC. This may appear instead of a time-out when a PLC is in bridge mode to a Modbus Plus network. The PLC that the EZText Enhanced Panel is communicating with will return this error if the message could not be passed on to the addressed PLC.

Illegal Data Value
The value in the data field is not allowed for the PLC.

Slave Device Failure
An unrecoverable error occurred in the PLC.

Acknowledge
The PLC requires more time to process the message.

Slave Device Busy
The PLC is processing a long command and is not ready for a new one.

Negative Acknowledgment
The PLC cannot perform the function requested.

Memory Parity Error
An error was detected in the PLC memory.

0x0040 Broadcast not allowed in read command
If a broadcast message to read was attempted.

0x0080 PLC time-out - PLC nnn
The EZText Enhanced Panel is unable to communicate with the PLC with address nnn. This may be corrected by increasing the time-out time or increasing the baud rate. An alternative may be to lower the number of registers or coils per message. This cause the EZText Enhanced Panel to use smaller messages, which the PLC should be able to respond to at a faster rate.

0x0100 PLC reply length exceeded - PLC nnn
The driver received, or is receiving a message with a length exceeding the maximum allowed by Modbus protocol from the PLC with address nnn.

0x0200 Invalid write to Panel register nnn
A write was attempted to the EZText Enhanced Panel's internal register nnnn when that register is mapped to a read-only location in the PLC.

0x0400 Invalid attributes - using defaults
The driver received attributes it could not use. The default values for all PLC attributes will be used.

OMRON HOST LINK PLCs

0x0000 No error

0x0001 Incompatible Revision
This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to monitor.

0x0004 Incorrect Unit Response

This will occur when there are too many registers on the display to be monitored. The number of registers on the display must be reduced.

0x0008 PLC Invalid Checksum received

An invalid checksum was received in a message from the PLC.

0x0010 Incorrect reply received

The driver received an incorrect reply from a PLC.

0x0020 Response to an undefined command

The driver received the undefined command response.

0x0040 Command cc Error Response Code xx

This error occurs when a response code xx is returned to a PLC message command of cc.

0x0080 Incorrect Map Size

This error occurs when an incorrect map is stored that is not the correct map entry size the driver expects.

0x0100 Invalid Write to EZText Enhanced Panel register r

This error occurs when an attempt is made to write to a register r when r is mapped to read-only element.

0x0400 PLC Message Time-out

This error occurs when a no reply or error is seen within the time-out time in the EZText Enhanced Panel PLC attributes. If the EZText Enhanced Panel is displaying time-out errors, the timeout may need to be increased.

0x2000 Invalid PLC attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

Siemens 7 MPI Adapter PLCs

Please Note: If the panel is disconnected from the HMI adapter, and then reconnected, it may take up to 70 seconds for the panel to regain communications and become synchronized with the adapter.

0x0000 No Error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to monitor.

0x0008 Protocol Error

The driver has received a serial communications protocol error from the PLC. The driver is unable to communicate with the PLC when this error occurs.

0x0040 PLC Error Incorrect Map Size

An incompatible map has been loaded into the unit. The driver will attempt to communicate with the PLC when this error occurs.

0x0080 Invalid Write to Panel register nnnn

A write was attempted to an internal Panel register number nnnn that has been mapped as a read-only location.

0x0100 PLC Communication Timeout

The Panel is unable to or has lost communication with the PLC.

0x0200 Invalid PLC Attributes - Using Defaults

The panel has received invalid attributes. The default attributes for all PLC attributes will be used.

0x1000 COMMAN_TRANS_ERROR

This error occurs when the PLC detects an error condition. Consult the PLC Communication Error Responses List.

EZText Enhanced Panel Error Messages

READ ONLY VALUE

This message indicates that the operator has tried to edit to a read only data item.

INVALID

This message indicates that the operator has entered an illegal password.

NO DATA SET

This message indicates that the operator has tried to enter a data item in a message that contains no data items.

OUT OF RANGE

This message indicates that the operator has entered a value in a data item that is out of range.

EZText Enhanced Programming Software Error Messages

Error Codes are divided into categories and are numbered with prefixes and 3 digits as follows:

PLC DLL Errors	Pxxx
Communications Errors	Cxxx
Tag Errors	Txxx
Message Errors	Mxxx
Miscellaneous Errors	Zxxx

PLC DLL Error Messages:

Error P001: Load dll Procedure failed. Unable to validate PLC address. Possible reason: Unable to locate correct PLC DLL.

Reason: A PLC .dll file has been moved or deleted from the program directory.
Solution: Reinstall the software.

Error P002: Unable to load library : PlcUtils.dll

Error P003: Unable to load PLC dll.

Error P004: Unable to unload PLC dll.

Error P005: PLC DLL load failed.

Reason: Unable to load selected PLC dl.
Solution: (1) Try closing all other applications and retry; (2) reboot the system; (3) reinstall the software.

Error P006: PLC1 is not compatible with PLC2. Do you want to change the PLC anyway?

Error P007: Unable to rebuild the address for new PLC.

Reason: When changing PLCs, check theaddressing in the PLC manuals to see if they are compatible (same addressing type is followed in both PLCs). If they are not compatible, then the database is no longer valid and the addresses will have to be reentered.

Communication Error Messages:

Error C001: The panel connected to the PC is different from the configured one

Reason: When writing to the panel, if the panel type selected does not match the panel that the computer is physically connected to, the program loader will not upload the project.
Solution: Select appropriate panel type for the connected panel.

Error C002: Cannot Locate the Driver File

Reason: Driver file (*.plx) has been moved or deleted from the program directory.
Solution: Reinstall the software.

Error C003: Error opening port

Reason: Either you have not selected a valid COM port available on your computer or some other program is using this port.
Solution: Select another available COM port or close the program that is using this COM port. If this does not work, reboot your system and try again.

Error C004: Error in setting communication attributes

Reason:Unable to set the attributes for the Panel to PC communciation.
Solution: Reboot the system.

Error C005: Unable to write to Panel. Possible cause: No local messages configured.

Reason: No local messages are configured. At least one local message should be configured before downloading the program to the panel.
Solution: Configure local messages.

Error C006: Error in reading the project from the panel. Project in the panel is corrupted.

Solution: Please upload the project from the computer to the panel. You cannot read the project from the panel.

Error C007: Invalid Length in Reply

Reason: Length of the panel reply buffer is less than the maximum replay length (70)
Solution: If you receive this error message consistently, please report it to technical support.

Standard reply error messages:

ErrorCode	Error Message
1	Error C008: Checksum error
2	Error C009: Time out Error. Make sure Panel is in Setup Mode. To enter Setup Mode, press the up and down arrow keys simultaneously
3	Error C010: Invalid Message Code
4	Error C011: Start Load Not Requested
5	Error C012: Start Dump Not Requested
6	Error C013: Insufficient space in Text Panel
7	Error C014: Invalid Message Number
8	Error C015: Invalid Message Length
9	Error C016: The firmware being loaded into the panel does not match the panel type
10	Error C017: E2 Memory failed to program correctly
11	Error C018: Invalid Load Format
12	Error C019: Invalid LED control
13	Error C020: Option Not Included
14	Error C021: Memory is Read Only
21	Error C022: Invalid with Random PLC loaded
22	Error C023: Invalid with Random/standard format
24	Error C024: Invalid Byte in the data fields of Command

PLC Address Error Messages:

Error T001: PLC Address count exceeds maximum limit.

Solution: You cannot assign another PLC address. Only 300 PLC addresses can be defined. If you want to assign a new address, delete one or more addresses and try again.

Error T002: Invalid Access Type

Reason: Access type of the specified address is invald (e.g., entering a READ only address where a READ/WRITE address type is expected.
Solution: Supply the correct address.

Error T02_1: Invalid Unit Number.
Error T02_2: Invalid Address Type.
Error T02_3: Invalid Address.
Error T02_4: Invalid Bit Number.
Error T02_5: Address in not Word Aligned (Even address is required).
Error T02_6: Address is not Word Aligned (Odd address is required).

Reason: Address entered for the PLC Address is not correct.
Solution: Specify a valid PLC address.

Error T003: The value entered is invalid.

Reason: The value entered for Minimum or Maximum field is out of range.
Solution: Supply values in the range 0…9999 for BCD and 0…65535 for Binary

Error T004: Unable to open tag map file : <filename> Please choose the map file
Error T005: Unable to open map file <map file>

Reason: Think N Do map (.map) file not found.
Solution: Locate the correct map file.

Error T006: Error in reading PLC Addresses

Reason: Unable to generate PLC address while reading from the panel.
Solution: Project in the Panel is corrupted. Reload the project to the panel.

Error T007: Unknown access type specified for PLC Address.

Reason: Invalid access type found while reading a project from disk.
Solution: Project in the Panel is corrupted. Reload the project to the panel.

Message Error Messages:

Error M001: Unable to add a new Message/Folder. Possible cause: All the available 256 messages have been programmed

Solution: Delete one or more messages or folders and try adding your message again.

Error M002: Invalid message number or this message number has already been configured.

Solution: Please change the message number to a valid message number and ensure that this message number was not programmed earlier.

Error M003: Cannot add a message with message number greater than 256.

Solution: Message numbers have to be numbered with the range of 1 to 256. Please enter a valid message number within this range.

Error M004: Invalid Message Number.

Solution: Valid range for message number is 1 to 256. Please enter a valid message number.

Error M005: Message number is out of range.

Solution: Message number is out of range. Valid range is 1-256

Miscellaneous Error Messages:

Error Z001: Error in printing page.

Solution: (1) Check whether you have printer attached to the PC and set to Ready; (2) if still receiving this error, reboot the system and check printer to PC connection.

Error Z002: You are trying to read from an invalid file.

Reason: Either project file is corrupted or you are trying to open an non-EZText Enhanced file.
Solution: If the project file is corrupted, then, recreate the project.

Error Z003: The file may be corrupted.

Reason: The Exec file is corrupted.
Solution: If you receive this error message consistently, please report this to technical support.

Error Z004: Unable to open the PLC driver file.

Reason: Invalid PLC driver file.
Solution: If you receive this error message consistently, please report this to technical support.

Error Z005: The Maximum message length has exceeded.

Reason: Maximum message length exceeded.
Solution: Reduce length of message.

Error Z006: Unknown value type encountered while loading project. Known values are 0 (BCD) and 1 (Binary)

Reason: Invalid value type found while reading project from disk.
Solution: Project file in the panel is corrupted. Reload the project to the panel.

Error Z007: Discrete addresses are not allowed here.

Reason: Discrete addresses are not allowed in the EZText Enhanced Panel.
Solution: Use the correct address type.

Error Z008: Invalid Device Type

Reason: The connected equipment may not be an EZText Enhanced Panel.
Solution: Ensure that you are connected to an EZText Enhanced Panel.

Error Z009: Error in project file Line : <line number> Column : <column number> <filename>

Reason: The project file (XML version) is invalid.
Solution: Use a valid project file.

AROMAT PLC WITH MEWTOCOL COM PROTOCOL

Error 0: NO_ERROR

Screen Message: **N/A**
Condition: NEVER WILL OCCUR

Error 1: INVALID_ATTRIBUTES

Screen Message: **INVALID PLC ATTRIBUTES - USING DEFAULTS**
Condition: If attributes do not exist or there are less than the original number of attributes.

Error 2: MSG_ERR

Screen Message: **INVALID PLC RESPONCE: Txxxxx[,xxx][/BB]**
Condition: The Driver did not receive the reply from the PLC that it expected.

Error 3: PLC_TIMEOUT

Screen Message: **PLC TIMEOUT**
Condition: The Driver did not receive a reply to a message in the allowed time.

Error 4: BCC_ERR

Screen Message: **CHECKSUM ERROR**
Condition: Command string was not sent from the Panel to the PLC correctly, or the checksum in the message was incorrect.

Error 5: FMT_ERR

Screen Message: **FORMAT ERROR**
Condition: Command string was missing characters or some were incorrect.

Error 6: NOT_ERR

Screen Message: **NOT SUPPORT ERROR**
Condition: Command from Panel does not exist on the PLC.

Error 7: PRO_ERR

Screen Message: **PROCEDURE ERROR**
Condition: Command was sent to the PLC while it was still processing an existing command.

Error 8: WRONG_STN_ERR

Screen Message: **WRONG STATION REPLIED TO MSG**
Condition: The received message contained a different station number from the message the driver sent.

Error 9: CSUM_ERR

Screen Message: **INCORRECT CSUM FROM PLC**
Condition: The received message from the PLC had a bad checksum.

Error 10: INVALID_DRIVER_STATE

Screen Message: **INVALID DRIVER STATE**
Condition: NEVER SHOULD OCCUR.

Error 11: GENERAL_ERROR

Screen Message: **ERROR CODE xxx**
Condition: NEVER SHOULD OCCUR.

Error 12: LAST_ERROR

Screen Message: **N/A**
Condition: NEVER WOULD OCCUR

CTC PLC WITH BINARY PROTOCOL

Error 0: NO_ERROR

Screen Message: **N/A**
Condition: Never will occur

Error 1: INVALID_ATTRIBUTES

Screen Message: **INVALID PLC ATTRIBUTES - USING DEFAULTS**
Condition: The error will be displayed if attributes do not exist or there are less than the original number of attributes.

Error 2: RECEIVED_BAD_CHECKSUM

Screen Message: **INVALID CHECKSUM RECEIVED: (Txxxxx [,xxx] [/BB]**
Condition: This error will be displayed if a message received from the PLC has a bad checksum.

Error 3: SENT_BAD_CHECKSUM

Screen Message: **INVALID CHECKSUM SENT: (Txxxxx [,xxx] [/BB]**
Condition: This error will be displayed if the driver sent the PLC a message with a bad checksum.

Error 4: ILLEGAL_REG_READ

Screen Message: I**NVALID REGISTER READ: (Txxxxx [,xxx] [/BB]**
Condition: This error will be displayed if the PLC indicated that the driver attempted to read a register with an invalid address.

Error 5: ILLEGAL_REG_WRITE

Screen Message: **INVALID REGISTER WRITE: (Txxxxx [,xxx] [/BB]**
Condition: This error will be displayed if the PLC indicated that the driver attempted to write to a register with an invalid address.

Error 6: VAL_OUT_RANGE

Screen Message: **VALUE OUT OF RANGE: (Txxxxx [,xxx] [/BB]**
Condition: This error will be displayed if the driver attempted to write to a value than was out of range.

Error 7: MSG_ERR

Screen Message: **INVALID PLC RESPONSE: (Txxxxx [,xxx] [/BB]**
Condition: This error will be displayed if the driver did not receive the reply from the PLC that it expected.

Error 8: **DT_ELEM_NOT_FOUND**

Screen Message: **DATA TABLE VALUE NOT FOUND: (Txxxxx [,xxx] [/BB]**

Condition: This error will be displayed if the driver found a tag that does not exist on the data table. For example, the Row or Column number was out of the range of the PLC's data table limits.

Error 9: **PLC_TIMEOUT**

Screen Message: **PLC TIMEOUT**

Condition: This error will display if the driver did not receive a reply to a message in the allowed time.

Error 10: **DT_STRING_OUT_BOUNDS**

Screen Message: **MESSAGE STRING OUT OF BOUNDS: (Txxxxx [,xxx] [/BB]**

Condition: This error will display if the driver found a tag that does not exist on the data table. For example, the message string included a column number that was out of the range of the PLC's data table limits.

Error 14: **INVALID_DRIVER_STATE**

Screen Message: **INVALID DRIVER STATE**

Condition: Never should occur.

Error 15: **GENERAL_ERROR**

Screen Message: **ERROR CODE xxx**

Condition: Never should occur.

Error 16: **LAST_ERROR**

Screen Message: **N/A**

Condition: Never should occur.

IDEC PLC WITH COMPUTER LINK PROTOCOL

Error 1: INVALID PLC ATTRIBUTES - USING DEFAULTS

This error is reported when the PLC driver receives an invalid set of PLC attributes. The default attributes will be used when this error occurs.

Error 2: PLC TIMEOUT

The Driver did not receive a reply to a message in the allowed time. Check the communication between panel and PLC.

Error 3: DATA RANGE ERROR

This error occurs when response from PLC to read or write had a data range error.

Error 4: T/C PRESET CHANGE

This error occurs when response from plc for an invalid, present value is written to timer or counter.

Error 5: CALENDAR/CLOCK DATA

This error occurs when invalid data is sent to calendar or clock. Command was sent to the PLC while it was still processing an existing command.

Error 6: WRONG STATION REPLIED TO MSG

The received message contains a different station number from the message that the driver sent from panel.

Error 7: INCORRECT CSUM FROM PLC

Error 8: BCC ERROR

The calculated Check sum from the panel did not match with the value that PLC received in a message.

Error 9: FRAME ERROR

Number of bits received by the PLC differs from the preset value (stop bit is 0 for example).

Error 10: DATA SEND/RECEIVE ERROR

Parity error or overrun error occurred on PLC.

Error 11: COMMAND ERROR

Unsupported request message is received

Error 12: PROCEDURE/DATA QUANTITY ERROR

Received request message for the panel does not match the expected data (including quantity of data).

TEXAS INSTRUMENTS PLC WITH SERIES 5x5 PROTOCOL

0x0000 No error

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to monitor.

0x0004 Invalid checksum received

An invalid checksum was received in a message from the PLC.

0x0008 PLC Error - Check PLC Status

The PLC has sent an error code to the Panel stating there was a problem with the program in the PLC or with the setup of the Panel.

0x0010 Communications time-out

This error will appear if there is a loss of communications. This error is based on time-out time entered in the PLC attributes.

0x0020 Panel Register xxxx is read only

This error will occur if there is an attempt to write to a read-only variable within the PLC.

0x0040 Register xxxx Address out of range

This error will occur if an attempt to read or write to a variable within the PLC that is out of range of the PLC memory.

0x0080 Register xxxx Data not found

This will occur if the data requested cannot be found within the PLC. This is an error sent by the PLC.

0x0100 Invalid PLC attributes - using defaults

The driver received attributes that it could not use. The default values for all PLC attributes will be used.

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